MAINE COASTAL PLAN

Progress Report: June - August 1975

Submitted December 3, 1975

W. P.

State of Maine
Executive Department
State Planning Office
184 State Street, Augusta, 04333

JAMES B. LONGLEY
GOVERNOR

ALLEN G. PEASE
STATE PLANNING DIRECTOR

TEL. (207) 289-3261

DEC 1 4 1975

November 24, 1975

Mr. John Sun, Regional Coordinator
U.S. Department of Commerce
Office of Coastal Zone Management
NOAA - 11400 Rockville Pike
Rockville, Maryland 20852

Re: Grant #04-5-158-50005

Dear John:

This letter is to serve as a summary report of activity during the months of June, July and August. The report for this period has been organized in a similar format to the previous one, and contains the following information:

1. Federal Contacts
2. The Mapping Effort - Inventory and Analysis Charts and Corresponding Maps
3. Personnel Changes
4. Public Participation Summaries
5. Critical Area Program
6. Coastal Zone Management Mapping Documents
7. Administration

The following descriptions summarize Maine's Coastal Zone Management activities in each of the above categories.

1. Federal Contacts

Contact with Federal and regional agencies who participated in earlier joint meetings was maintained but at a decreased level. Also routine contact was maintained with all Federal agencies through designated personnel. This took place after withdrawal of the 306 Management Application in June of 1975. At that point the program went back into a full planning mode instead of a management one.

2. The Mapping Effort

The staff of the mapping and data gathering program worked mainly on correcting and completing basic data maps for the coastal zone during the June-August period. There were fewer formal presentations of information and a great many more informal meetings with groups organized by the Regional Planning Commissions in order to verify mapped information.

3. Personnel Changes

Major personnel changes during the period included the hiring of an Outer Continental Shelf Oil Coordinator, Steven Weems. Those leaving the program during the period included the Planning Supervisor, R.A. Poitras; Resource Planner, Gary Freebody; Program Analyst, R. Davidov; and Administrative Assistant, W. Bickford.

4. Public Participation

The Public Participation efforts slowed during this period due to restructuring of the program after withdrawal of the 306 application. The program strategy was reassessed during this period and loose ends left over from the management application effort were tied up.

Most advisory groups held meetings so that they would be informed as to the changes in the program. In addition, many meetings were held by Regional Planning Commissions and some Town Planning Boards, in order to enable the public to make corrections and additions to the maps.

5. Critical Areas Program

During this period, preliminary decisions were made by the Critical Areas Advisory Board to register five tern nesting islands on the coast: Foster Island (Machiasport), Petit Manan Island (Steuben), Metinic Island (southern portion) (Metinicus Isle Plantation), Upper Sugarloaf Island (Phippsburg), and Beech Island (Biddeford). As a result, field checking and owner notification was begun.

In addition, three planning reports were issued on subject areas of interest. They were Oyster Beds in Maine, Great Rhododendron Stands in Maine, and Alcids Nesting on the Maine Coast. These reports are attached.

6. Coastal Zone Management Mapping Documents

A series of draft documents was also produced by staff during this period which dealt with the inventory and mapping programs and use of the maps by the public. They are included in this section.

The first of these documents is a draft of A Users Manual for the Maine Coastal Planning Atlas. This will be used with the Coastal Atlas.

The second group of materials attached is a compilation of cover sheets of a series of Fisheries and Wildlife Planning Reports prepared for the Coastal Planning Group by the Maine Department of Inland Fish and Game. These were prepared in the winter of 1974, but were omitted from the previous progress reports.

The last document is a Summary of Resource Information Collected for Mid-Coastal Maine as of June 1975.

7. Administration

Some contract details were also renegotiated and finalized during the period. They include the Archaeological Inventory, University of Maine; Islands Planning, Department of Conservation, Land Use Regulation Commission; Inventory of Maine Habitats, Northeast Research Foundation, Bigelow Laboratories.

Contracts negotiated but not finalized were Surficial Geology, Marine Environments, Groundwater, Maine Bureau of Geology and Natural Resource Courses, University of Maine.

Considerable staff effort also went into preparing a supplemental 305 application which was submitted to the Governor in August. To date, however, this application has not been acted upon.

The staff also spent a large amount of time on the institutional questions involved in the Coastal Planning Program, this resulted in a decision to pursue reorganization of the Governor's Advisory Committee on Coastal Development and Conservation.

Finally, the concept of funneling monies to municipalities through a small grants program was extensively discussed. It was agreed that this concept could be the basis of an acceptable 306 application.

Sincerely,

R. Alec Giffen, Supervisor
Resource Planning Division

rag.
Encls.

1. FEDERAL CONTACTS

(Summarized in cover letter)

2. INVENTORY AND ANALYSIS CHARTS AND CORRESPONDING MAPS

Complete and locally reviewed mid-coast maps are ready in the following areas: Soils, Slopes, Water Classifications and Watersheds, Wildlife and Fish, Marine Resources, Lakes Classification, Land Use Cover Types, Land Use - Facilities and Activities, Historic and Scenic Areas, Natural Areas, Recreation Facilities, and Areas of Particular Concern.

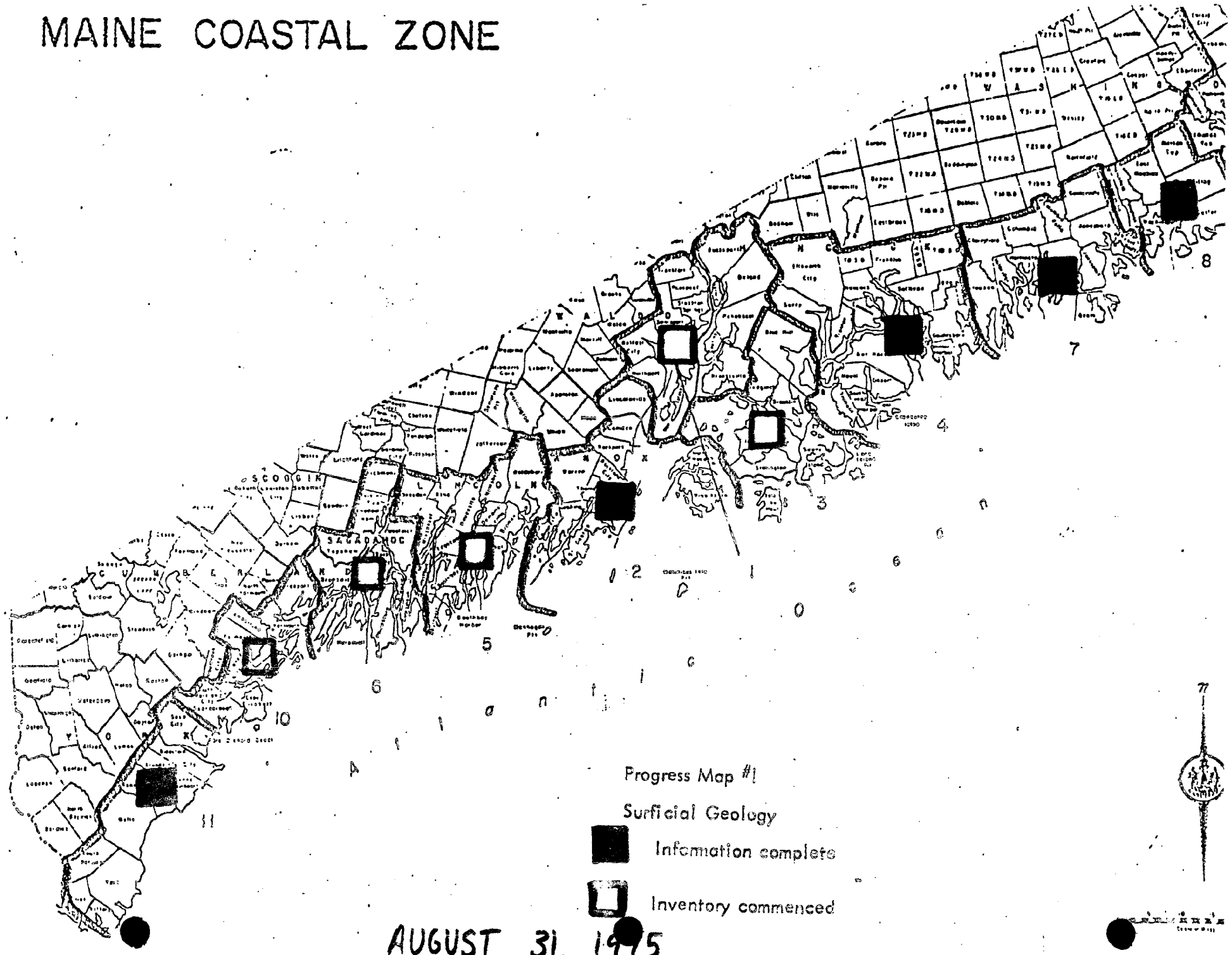
Maps either partially or nearly complete for the whole coast are Surficial Geology, Groundwater, Marine Environments, Archaeological Sites, Routes of Public Access, and overlays for determining the suitability of areas for large scale development uses. Bedrock geology, however, remains only "in progress" for the coast.

Maps and information completed for the whole coast (excluding Bangor and Augusta) include Water Classification, Watersheds, Wildlife and Fish, Scenic Viewpoints, Recreation Facilities, Historic Areas, and Lakes Classification.

August 31, 1975

		Groundwater	Surficial Geology	Bedrock Geology	Marine Environments	Water (legal) Classification	Watersheds	Wildlife and Fish	Marine Resources	Cover Types	Scenic Viewpoints	Recreation Facilities	Facilities & Activities	Historic Areas	Archaeological Sites	Natural Areas	General Soils	Lake Classification	Slopes	Routes of Public Access	Climatological Data	Intertidal habitats		
Upper Penobscot Bay	1-1	2	3		1	5	5	5	5	5	5	5	4	5		5	5	4			4			
	1-2	2	3		1	5	5	5	5	5	5	5	4	5		5	5	4			4			
	1-3	2	3		1	5	5	5	5	5	5	5	5	4		5	5	5			4			
Knox Region	2-1	5	5		5	5	5	5	5	5	5	5	4	5	5	5	5	4			4			
	2-2	5	5		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		4			
	2-3	5	5		5	5	5	5	5	5	5	5	5	5	5	5	5	5			4			
Eastern Penobscot Bay	3-1	4	4		5	5	5	5	5	5	5	5	5	5	5	5	5	5			4			
	3-2	4	4		5	5	5	5	5	5	5	5	4	5	5	5	5	5			4			
	3-3	4	4		5	5	5	5	5	5	5	5	4	5	5	5	5	5			4			
Eastern Hancock County	4-1	4	5		5	5	5	5	5	5	5	5	4	5	5	5	5	5	5		4			
	4-2	4	5		5	5	5	5	5	5	5	5	4	5	5	5	5	5	5		4			
	4-3	4	5		5	5	5	5	5	5	5	5	4	5	5	5	5	5	5		4			
Lincoln County	5-1	5	4		3	5	5	5	5	5	5	5	4	5	5	5	5	5	5		4			
	5-2	5	4		3	5	5	5	5	5	5	5	4	5	5	5	5	5	5		4			
	5-3	5	4		3	5	5	5	5	5	5	5	5	5	5	5	5	5	5		4			
Bath-Bruns. Eastern mid-coast	6-1	4	4		3	5	5	5	5	5	5	5		5	5	5	5	5	5		4			
	6-2	5	4		3	5	5	5	5	5	5	5		5	5	5	5	5	5		4			
West Wash. County	7-1		5		2	5	5	5		5	5	5		5		5	5	5			4			
	7-2		5		1	5	5	5			5	5		5		5	5	5			4			
Central Wash. County	8-1		5			5	5	5			5	5		5		5	5	5			4			
	8-2		5			5	5	5			5	5		5		5	5	5			4			
East Wash. County	9-1		5		1	5	5	5			5	5		5		5	5	5			4			
	9-2		5		1	5	5	5			5	5		5		5	5	5			4			
Cumberland Grtr. Portland	10-1	4	4			5	5	5			5	5		5		5	5	5			4			
	10-2	4	4			5	5	5			5	5		5		5	5	5			4			
Southern Maine	11-1	5	5		1	5	5	5			5	5		5		5	5	5			4			
	11-2	5	5			5	5	5			5	5	5	5		5	5	5			4			
Augusta	[redacted]										5											[redacted]		
Bangor	[redacted]																							

MAINE COASTAL ZONE



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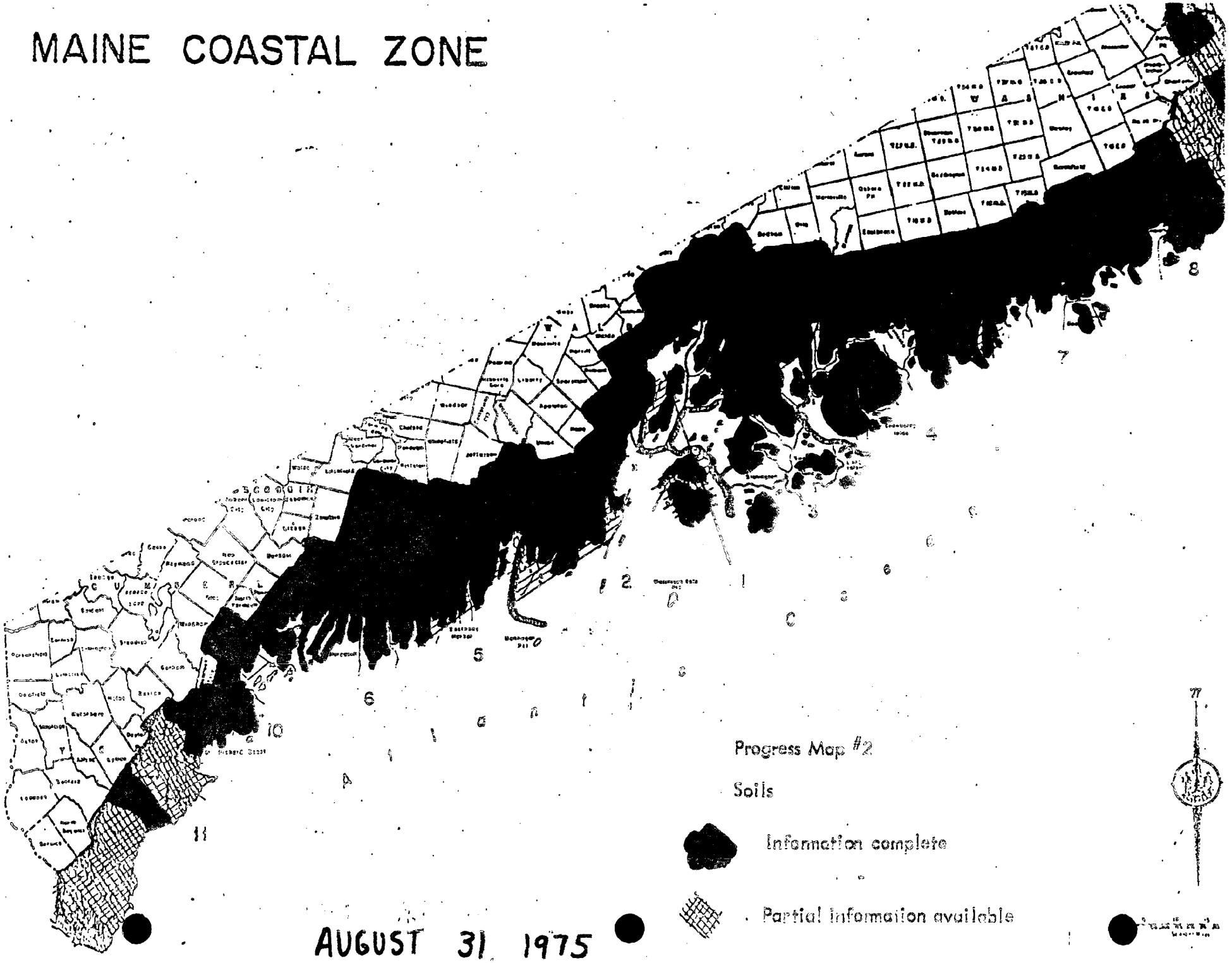

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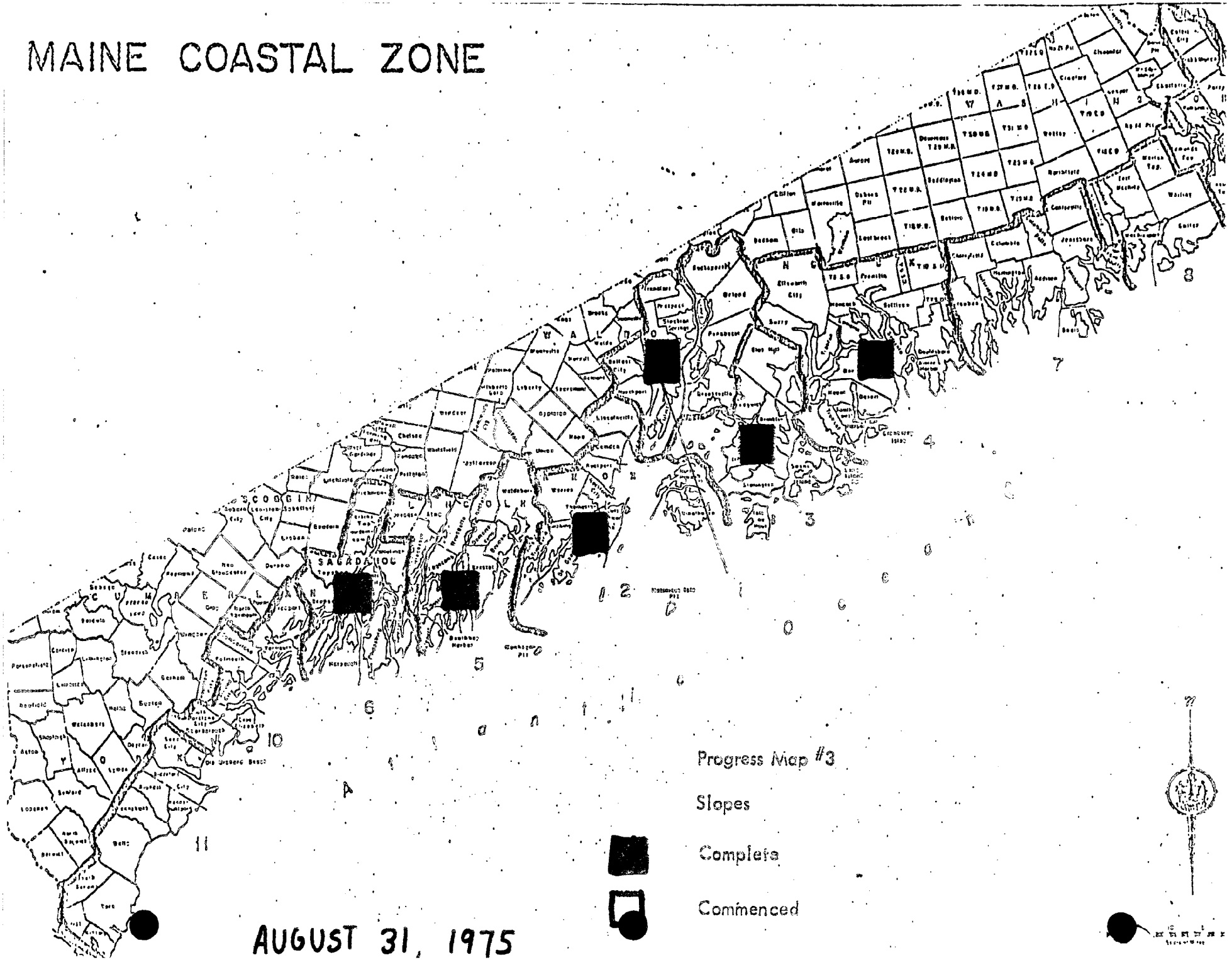
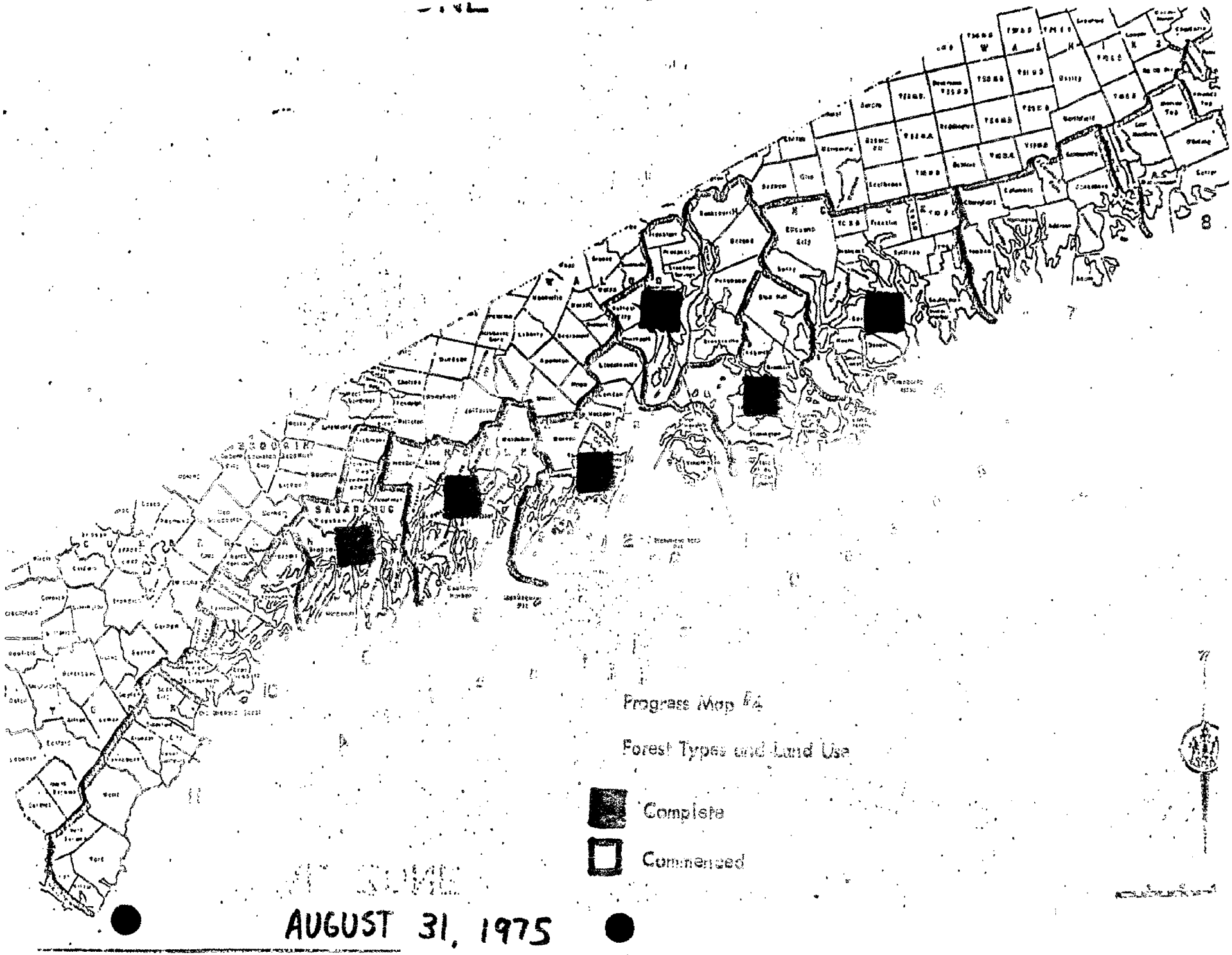
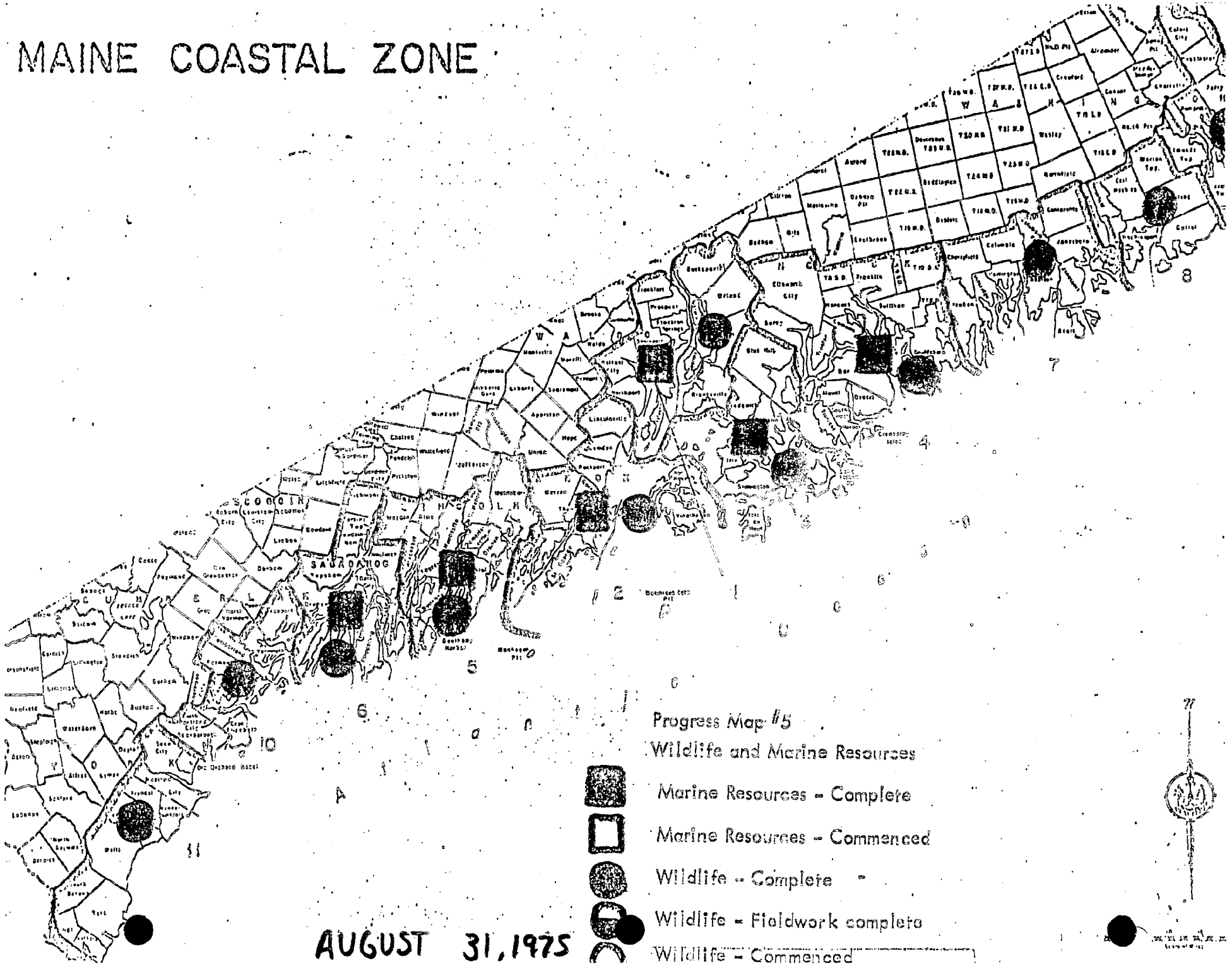



Progress Map #4
Forest Types and Land Use
Complete
Commenced
AUGUST 31, 1975

MAINE COASTAL ZONE



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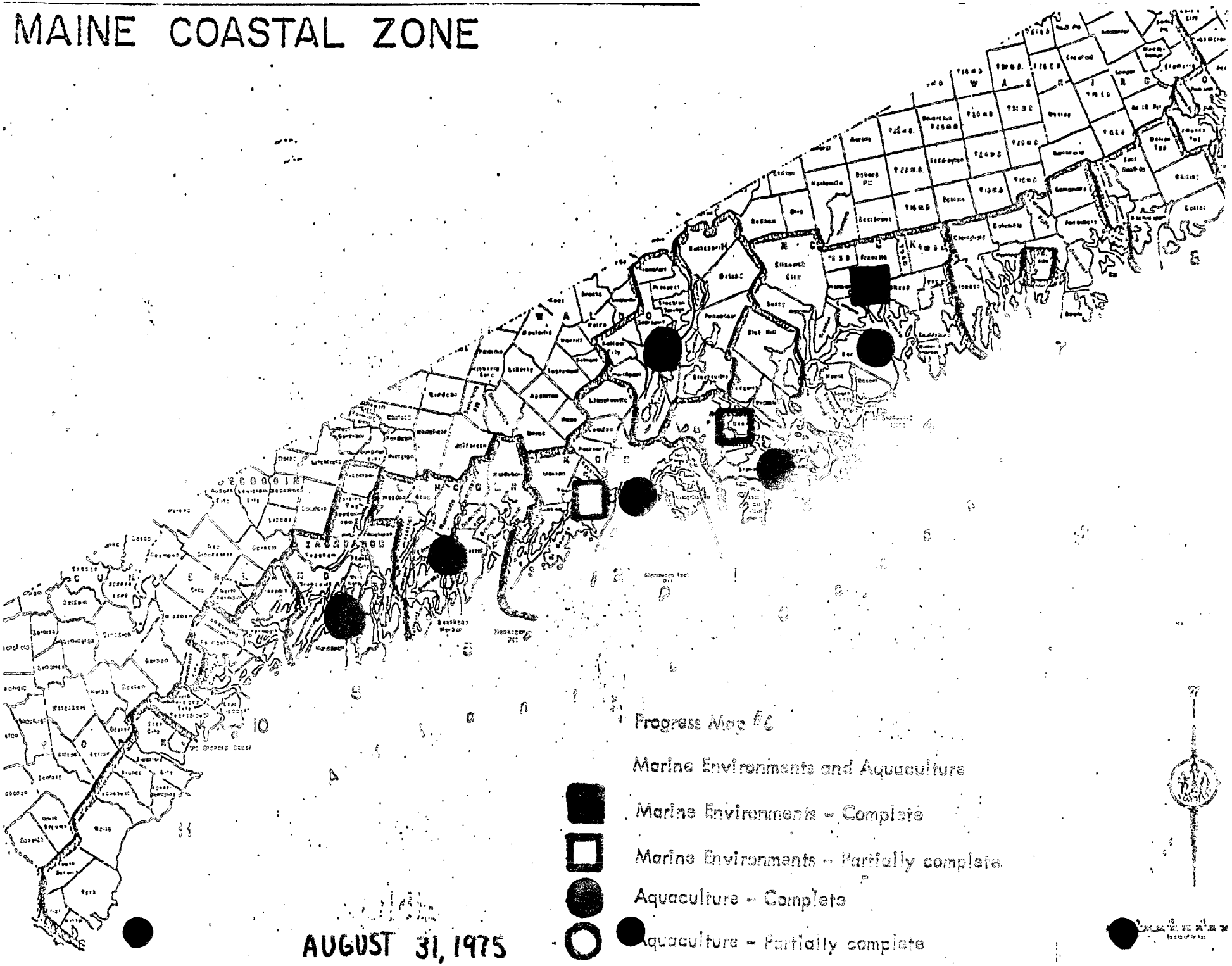
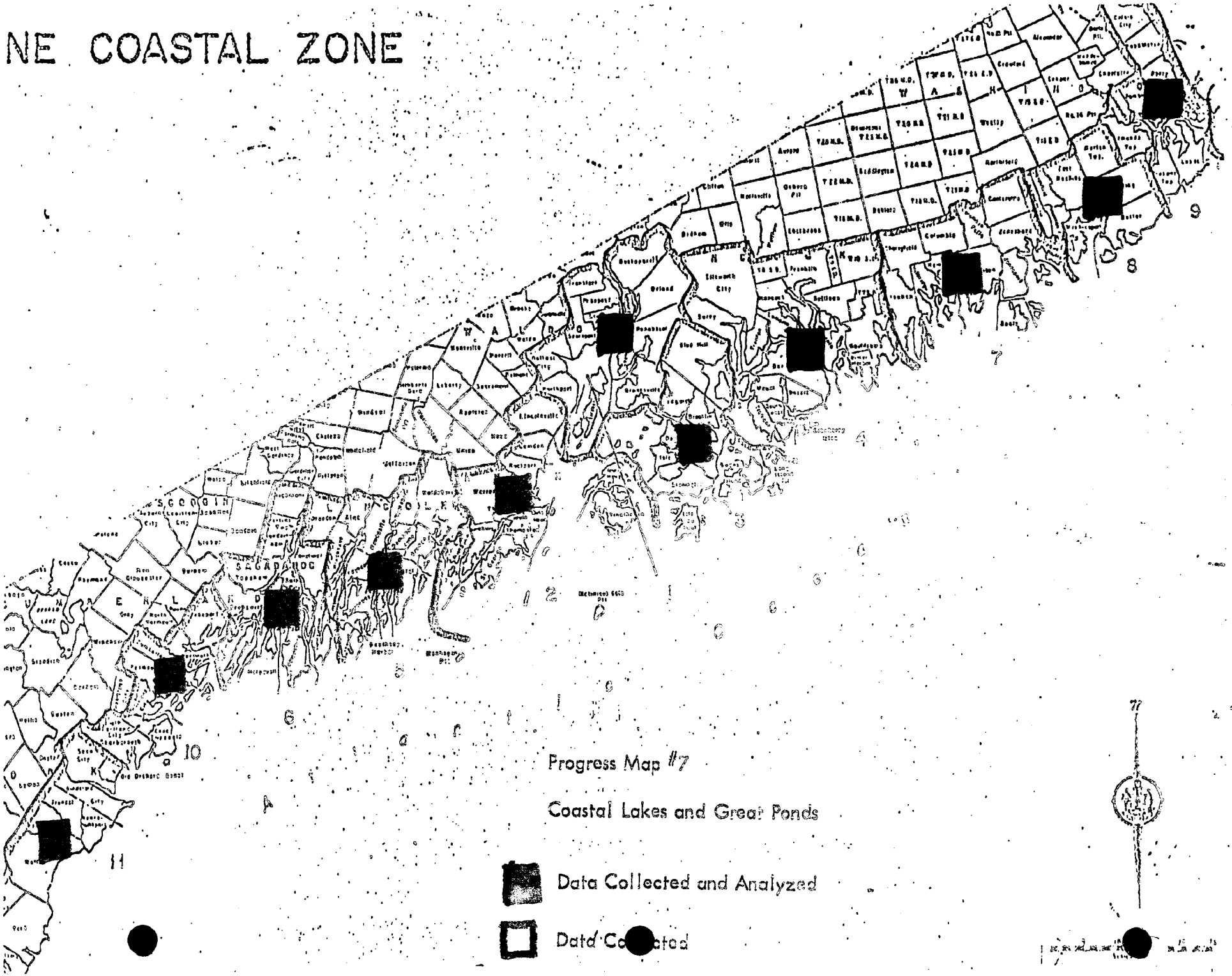


NE COASTAL ZONE



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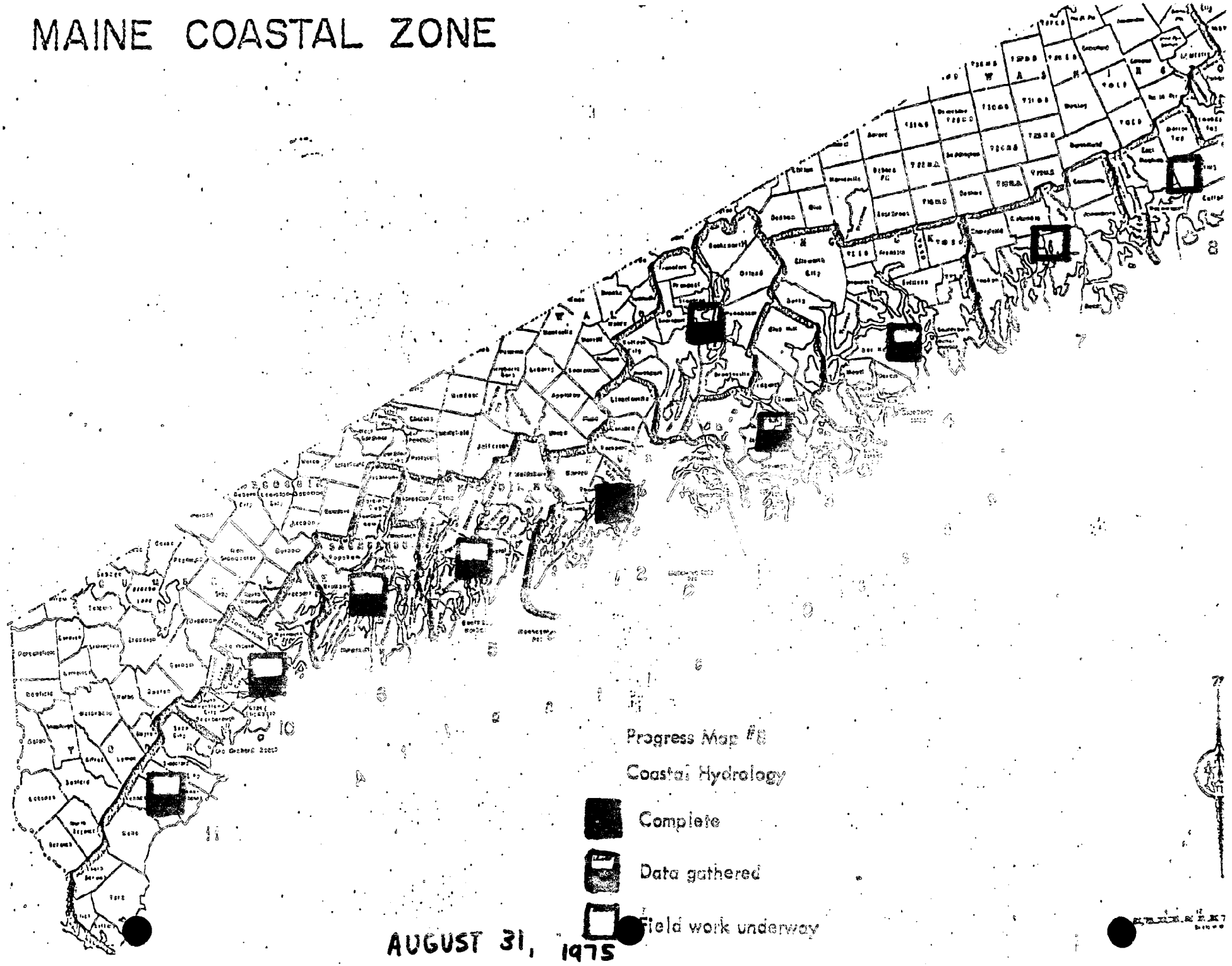

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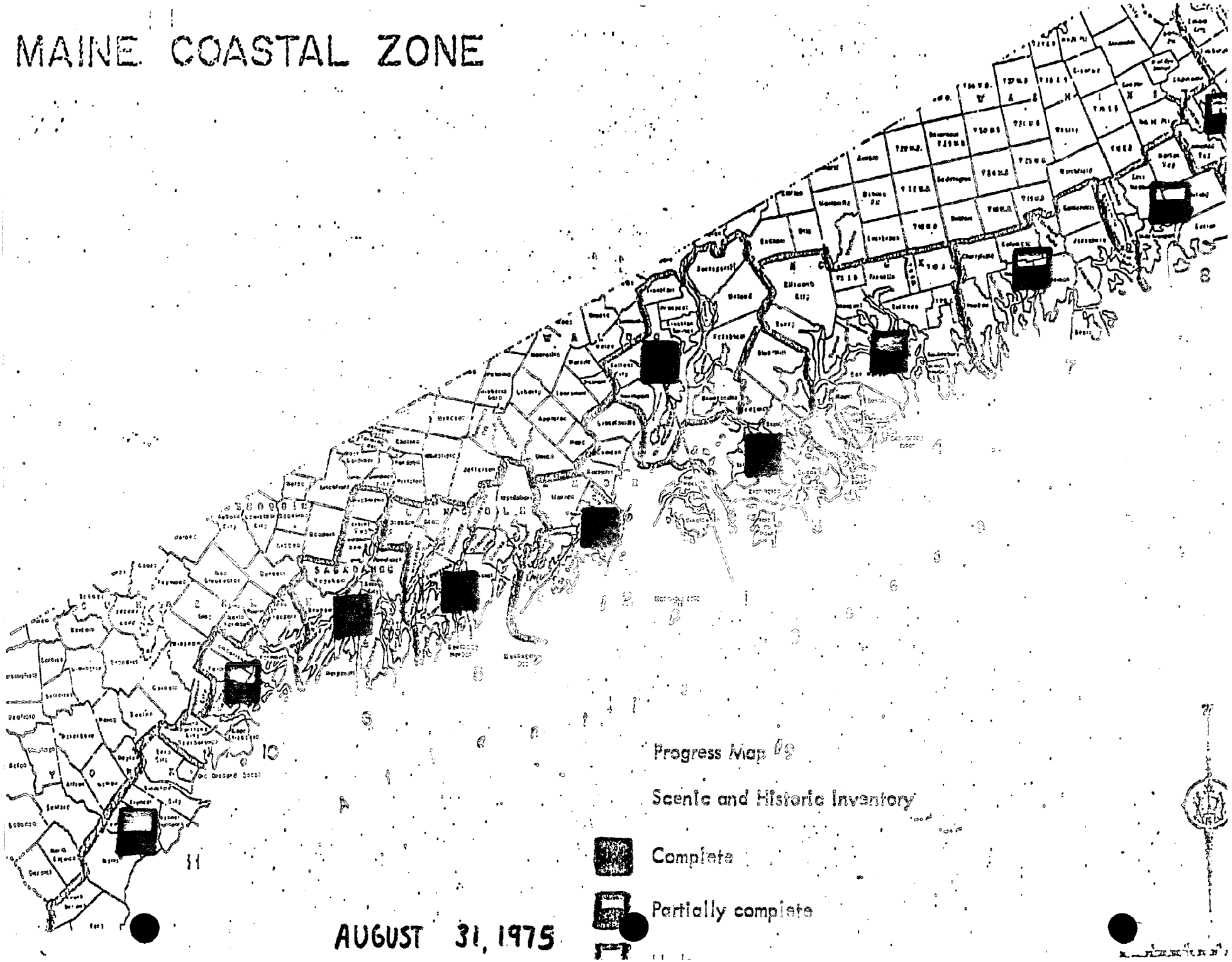

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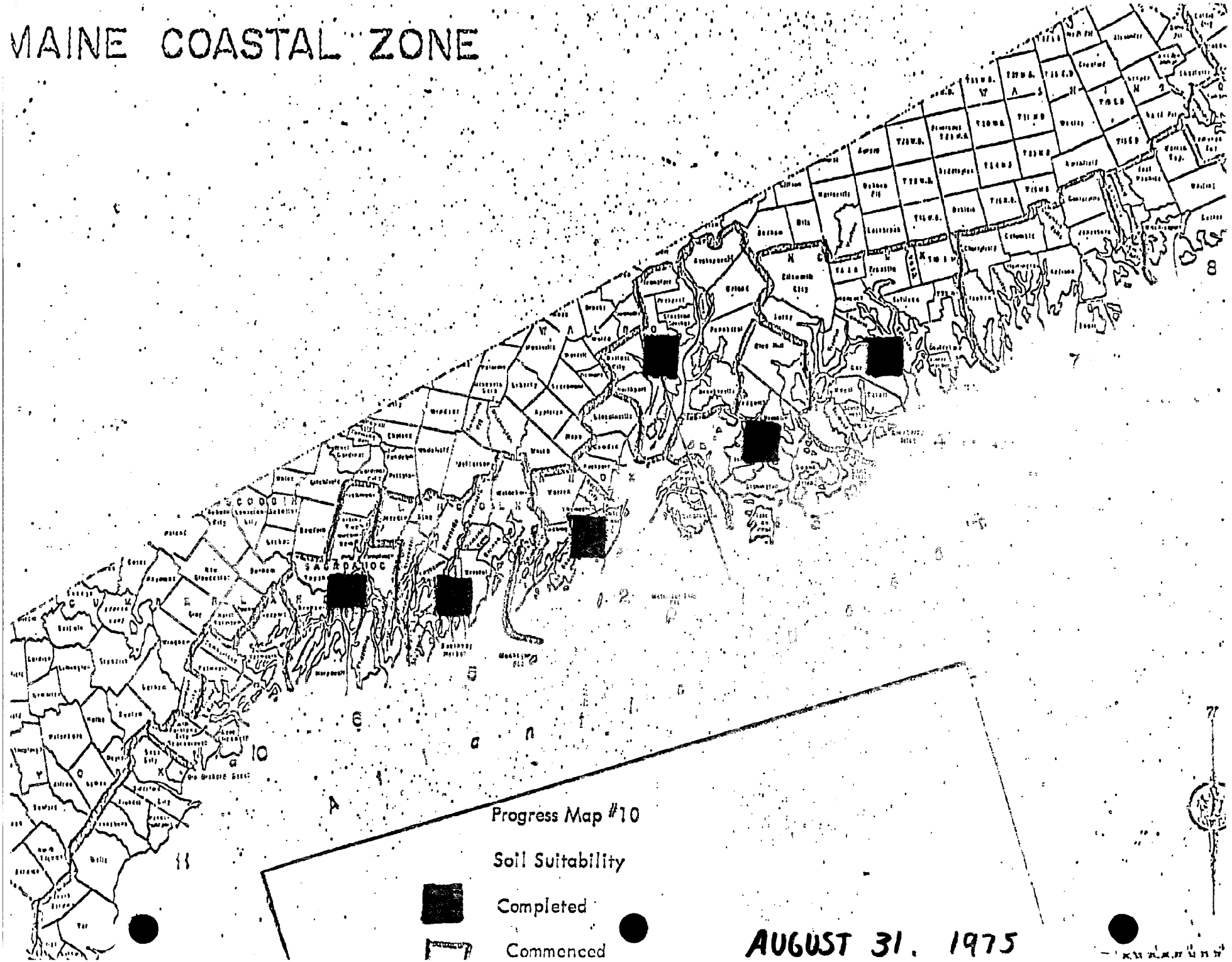

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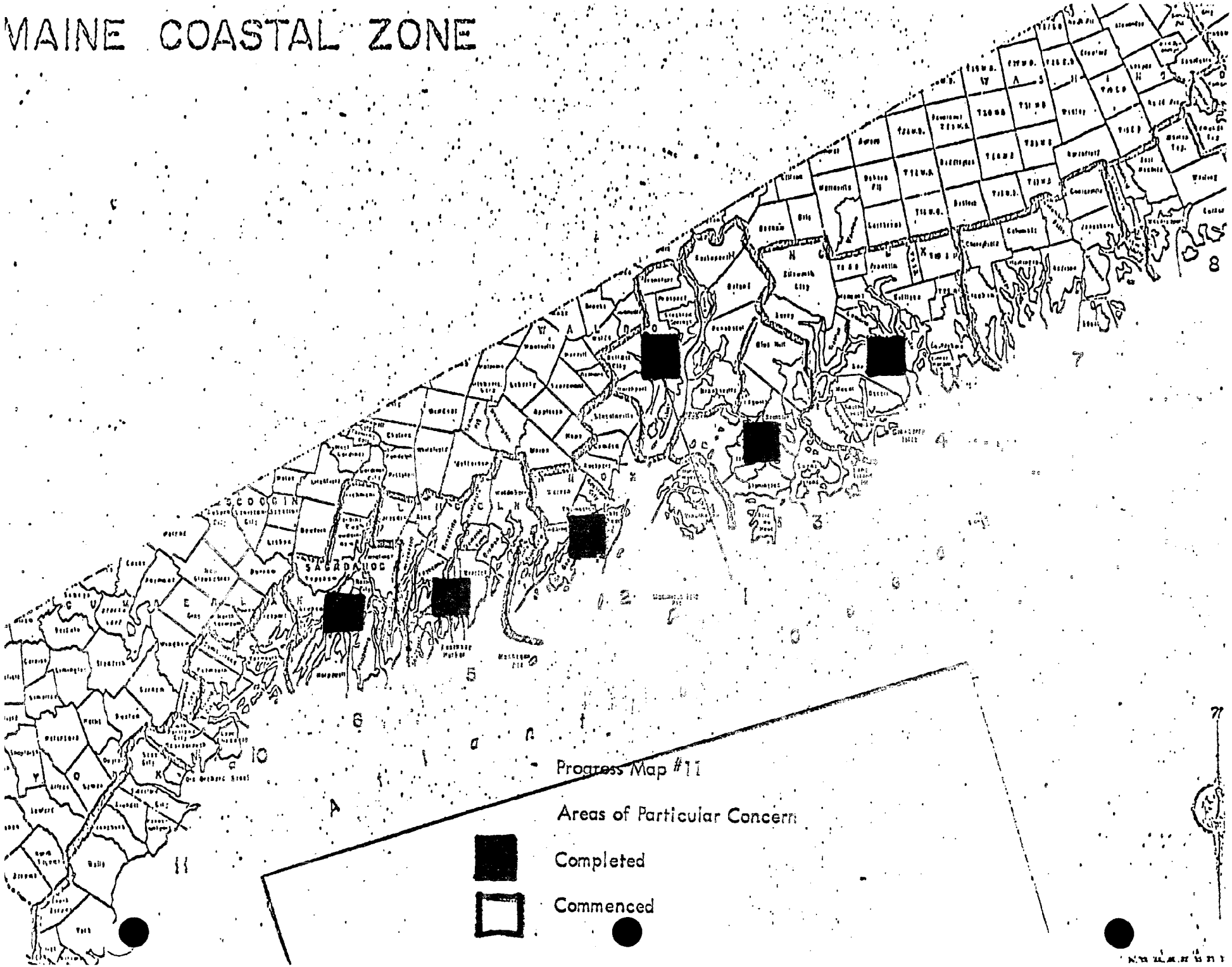

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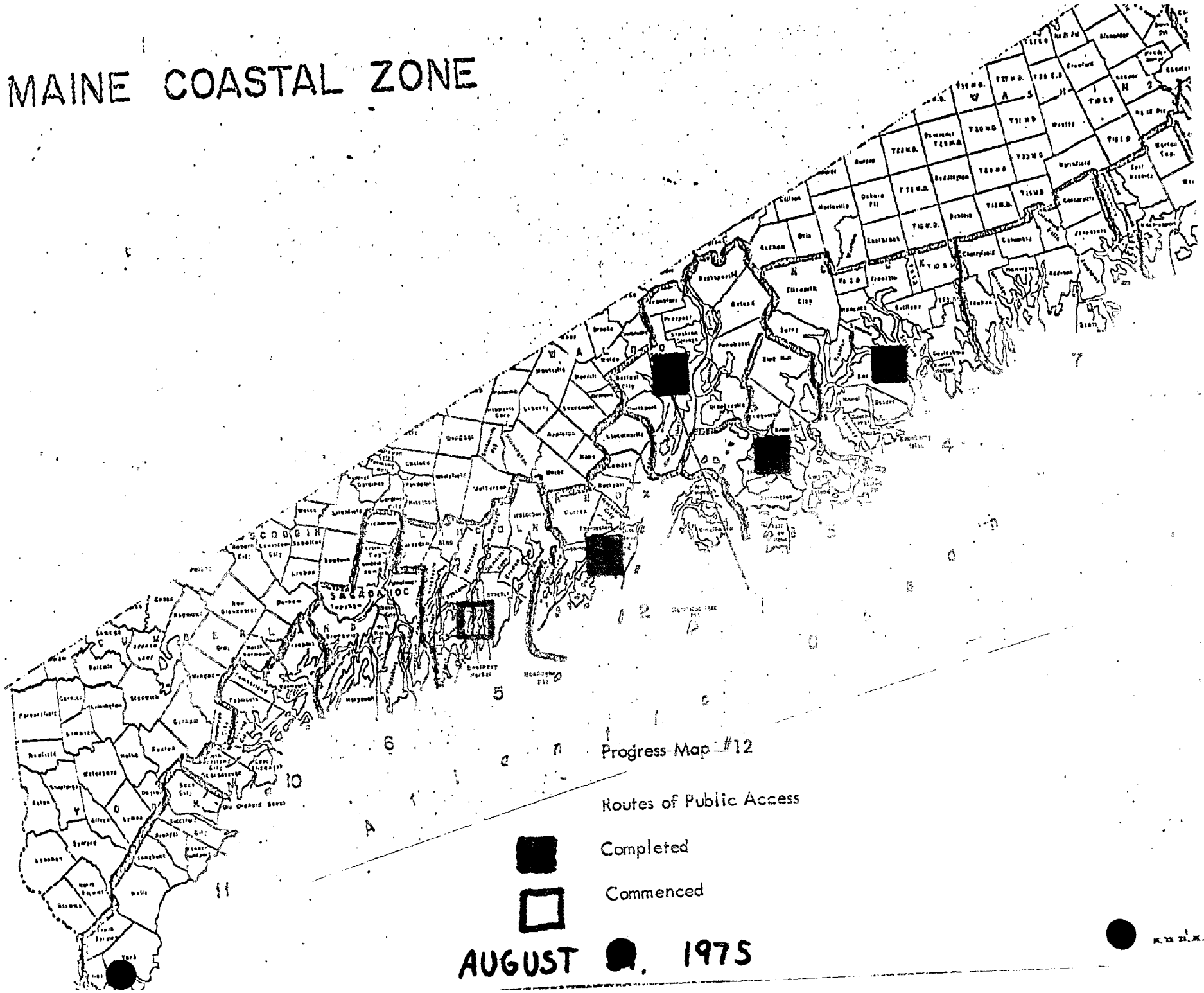


3. LIST OF PERSONNEL AND CONTRACTS

4. PUBLIC PARTICIPATION SUMMARY

Most Regional Planning Commission advisory groups held meetings so that they would be informed as to the changes in the program. In addition, many other meetings were held by Regional Planning Commissions and some Town Planning Boards in order to enable the public to make corrections, additions, and subtractions to the maps.

MAINE COASTAL PLAN BUDGET - PERSONAL SERVICES

1ST QUARTER 1975

POSITION TITLE	PERSON FILLING POSITION	PERIOD OR DATE VACATED OR TO BE VACATED	VACANCY DATE TO BE FILLED
Coastal Planning Supervisor	K. A. [illegible]	June 13, 1975	
Resource Planner	E. [illegible]	----	-----
Resource Planner	[illegible]	Aug 3, 1975	----
Ecologist	R. Griffen	----	----
OCS Coordinator	[illegible]		[illegible]
[illegible]	[illegible]	----	----
[illegible]		----	----
[illegible]	[illegible]	[illegible]	
[illegible]	J. Cowan		
Resource Analyst	[illegible] Hanstead		
Secretary	[illegible]		
Ad. Assistant	W. Rockwood	[illegible]	
Surveyor	[illegible]		
	[illegible]		

P V R P C

JUNE 1975 - AUGUST 31, 1975

CZMAC continued to function. Attached is a summary of activities which took place. After a meeting with State Planning Director, Allen Pease, the group agreed to hold off on further meetings until the status of CZM was clarified. Several map review meetings were also held.

June 2, 1975

TO: Members of the Coastal Zone Policy Committee
FROM: Kay Carter
RE: June Meeting

I have been working lately on developing a framework for discussion during our June meeting. I think that we should consider the CZM program in depth at that meeting. The management proposal has still not been signed by the Governor and so we have the opportunity to develop some meaningful ideas for it. It seems to me that our discussion can start from anyone of three places. We can:

1. Accept the basic outline of the CZM program as defined in the management proposal and make concrete recommendations about changes we would wish in the context of the proposed program;

2. Indicate that the CZM program, as developed by the State Planning Office, is only one way of interpreting the Coastal Zone Management Act of 1972 and the guidelines which go with it, and develop recommendations of possible program items which the committee feels would serve a useful function in the coastal area of the State of Maine;

or we can

3. Look at the law and guidelines and decide whether we feel that the state's involvement in any program such as CZM is warranted. In the case of this third option, a decision to the negative would imply that we might reasonably spend some time defining and considering areas of mutual concern and developing a framework for continuing work in these areas.

In order to facilitate your being able to decide where we should start in this discussion, I set out to write a summary of the CZM Law and Guidelines. After several hours of muddling through them, I came to the conclusion that a summary would, of necessity, edit out items which committee members may wish to read and consider. Therefore, I am sending a copy of the law and guidelines to all committee members.

Some guidance in using them may be useful. The law is fairly straight forward. Of particular concern to us are sections 305 (which deals with the planning aspects of the program) and 306

(which deals with the actual management of coastal areas). The guidelines are the interpretation which the Secretary of Commerce is placing upon the law in his responsibility of implementing it. The Nov. 29, 1973 guidelines are those referring to section 305 and the Jan. 9, 1975 guidelines are those referring to section 306. I don't suggest that you read these guidelines in their entirety but rather that you use them to understand the interpretation given to specific items in the CZM law and program.

I look forward to the June meeting and hope that together we will be able to develop ideas for a program which makes sense in this region, whether or not the program is part of the CZM effort.

* * * * * * * * * * * * * * * * * * *

POSTSCRIPT: Todays mail brought a suggested revision of the draft resolution from Howard Gray. I include it here for your consideration:

"The Coastal Zone Policy Committee of Penobscot Valley Regional Planning Commission resolves: That the Regional Planning Commission should be greatly strengthened because of its role as a bonding agent between the towns, and its professional competence in interpreting and relaying information from the SPO to the towns.

That the strengthining of the Regional Planning Commission can be accomplished in several ways, among them a more effective liaison between the PVRPC and the SPO before sweeping decisions are made by the SPO [redacted].

That the Regional Planning Commission should function to help retain at the local level, the powers and functions that are more appropriate at the local level, but have been gradually usurped by the state and federal agencies. The coastal communities in this region, fully support this and feel that the Regional Planning Commission is not 'another level of government', but rather the voice of various individual communities. The regional perspective reflects the views of the towns and gives strength to them.

We, therefore, resolve that the coastal zone planning and management program should not downgrade the role of the Penobscot Valley Regional Planning Commission but should be directed primarily through it to the towns."

I think Howard has made some good suggested revisions in this. I might take a moment to comment on the suggested third paragraph. If I may read between the lines, I think that the intent of that paragraph is to insure meaningful regional involvement in all planning which is done by the state and affects the region. If this is the case, we may want to change that paragraph to reflect the fact that many departments of the state government do planning which directly affects us and into which we should have some input. (Department of Transportation, Department of Environmental Protection, etc.) Thus the committee may wish to go on record as requesting that the Regional Planning Commission be involved from the start in all planning done at the state level which affects this region. We may further wish to go on record as supporting the concept of the regionalization of state level departments of government to insure easy access to those departments by local people. Perhaps these are ideas which should be discussed further at the June meeting in the context of CZM program development.

I will hold off in forwarding an official copy of this resolution until after the June 19 meeting.

KBC

June 12, 1975

TO: Members of Coastal Zone Policy Committee
FROM: Kay Carter
RE: June Meeting

This is to remind you that the next meeting of the Coastal Zone Policy Committee will be June 19th at 7:30 P.M. at Searsport Town Hall. The Town Hall is located on Resevoir Street which intersects Route 1 in the middle of Searsport. There is a sign on Route 1 pointing to the Town Office.

Tentatively the agenda will include:

1. Update on the status of the management proposal.
2. Update on mapping program.
3. Review of Resolution
4. Discussion of CZM program (see memo of June 2)

Hope to see you in Searsport.

KBC

October 9, 1975

Proposed Approach to Coastal Planning

The following is how the State Planning Office suggests proceeding with the Coastal Planning Program.

1. First and foremost, the institutions involved in making decisions regarding the program are felt to be crucial in determining its ultimate success or failure. In this regard, it is suggested that several groups assist in the development of the program:

   a. The Governor's Committee on Coastal Development and Conservation with expanded membership and charge (see draft Executive Order). The establishment of such a broadly representative group with strong representation by coastal local interests will provide a forum for the development of a program responsive to local and state needs.

   b. A Technical Advisory Committee consisting of planners and other interested persons from state agencies, regional planning commissions, municipalities, federal agencies, and other organizations with an interest in the technical aspects of the program. This committee would be established by the State Planning Office.

   c. Local advisory groups established and constituted with the advice of the Governor's Committee on Coastal Development and Conservation.

2. The Office also suggests redesigning the substance of the program to include the following major elements. These ideas will have to be discussed fully with the committees and advisory groups established before adoption:

   a. Conducting a broad spectrum of resource inventories and analyses; this information will be useful for many purposes and represents a valuable factual output of the program.

   b. Developing integrated and coordinated state-local policy and implementation strategies on coastal development and conservation.

      (1) The formulation of a Coastal Development Program, which would consist of two major components:

         (a) a planning component which would answer the questions of what kind of development would be best for the coastal area (and its subregions) and where should major development occur, and

         (b) an implementation component which would answer the question of what can be done to achieve this development.

      This program would not attempt to deal with all coastal development activities, but would focus on those of large scale. It will be designed such that it achieves the dual objectives of allowing

Penobscot Valley
REGIONAL PLANNING COMMISSION

31 CENTRAL STREET BANGOR, MAINE 04401 TELEPHONE 947-0529

June 19, 1975

RESOLUTION

The Coastal Zone Policy Committee of Penobscot Valley Regional Planning Commission resolves:

"That the Regional Planning Commission is the bonding agent between the towns, charged with the responsibility of aiding the various towns in the region in looking for joint solutions to common problems.

That the strengthening of the Regional Planning Commission can be accomplished in several ways, among them a more effective liaison between the P.V.R.P.C. and the S.P.O. before sweeping decisions are made by the S.P.O.

That the Regional Planning Commission functions to regain for (and retain at) the local level, powers and functions which in the past have been shifted to the state and/or federal level. The coastal communities in this region fully support this and feel that the Regional Planning Commission is not "another level of government" but rather the voice of the various individual communities. The regional perspective reflects the views of the towns and gives strength to them.

We, therefore, resolve that the coastal zone planning and management program should not by-pass the Penobscot Valley Regional Planning Commission but should be directed through it to the towns.

We further resolve that we are opposed to the formation of a single state-wide advisory committee to develop coastal zone policies. We believe that all coastal planning matters should be formulated and resolved by the State Planning Office working as an equal partner with the Regional Planning Commissions whose constituent members from coastal towns shall provide the needed, meaningful, citizen advisory input."

Passed unanimously
6-19-75

CZM MINUTES
June 19, 1975

The June meeting of the Coastal Zone Policy Committee of Penobscot Valley Regional Planning Commission was held at Searsport Town Hall on June 10, 1975. Present were ten members representing the towns of Orrington, Searsport, Stockton Springs, Frankfort, and Hampden. Also present were Abbie Page from the State Planning Office and Kay Carter from Penobscot Valley Regional Planning Commission staff.

The first item of business was an update on the status of the management proposal. Kay Carter reported that on June 2 the management proposal had been given to the Governor with four options for action. The options ranged from signing the management program proposal now to totally abandoning it. Abbie Page reported that the Governor had chosen the third option: to hold off the decision to sign for a year or more while more time and effort were used to develop the program. As a result of this, the staff at the S.P.O is going back and rethinking the whole program. They will be soliciting input from citizen advisory committees in the development of the programs.

A report was given on the status of the mapping program. Kay Carter said that she would be bringing the map series around to each of the towns which have already been mapped (Searsport, Stockton Springs, Frankfort and Prospect) for corrections. Volunteers were requested from each town to set up the meetings. Peter Garland, Howard Gray, and Burton Williams agreed to do this for their various towns. It was suggested that the maps be reviewed for both factual content and philosophy. The committee reconfirmed their sentiment, as expressed in a letter of April 23, 1975 from Toby Averill to Alan Goodwin, that they were not in agreement with either the scale used in making the maps or the philosophy implicit in them, however, it was agreed that the maps would be reviewed.

The discussion then turned to the draft resolution and the modification of the resolution as presented in the Memo of June 2 sent to the members of the committee. After much discussion of the wording and relative merits of each form of the resolution, it was moved by Joan Howard and seconded by Peter Garland that the two resolutions be combined. (see attached resolution) The committee then, feeling that the combined resolution expressed their sentiment regarding regional planning and the Regional Planning Commission, unanimously adopted the resolution. It was further decided that copies of the resolution, and a cover letter indicating who was present at the meeting, be sent to Governor Longley and Alan Pease, Director, State Planning Office. Burton Williams recommended, and the committee unanimously agreed, that Governor Longley and Alan Pease both be invited to the next meeting of the advisory committee. The staff of the Regional Planning Commission will do that.

The group then turned to a consideration of the programs they would like to see developed under CZM. Several types of programs were mentioned. These included things such as planning work in preparation for dealing with several potential major projects which will affect coastal areas such as off shore drilling, extending the jurisdictional limit to 200 miles, or siting of groups

of nuclear power plants. For all topics which were discussed, the sentiment was commonly felt and expressed that as far as possible, decisions about land use should be made at the local level. Clyde MacDonald mentioned that there are land use issues which, because of their nature, have an effect which goes beyond regional boundaries. Of necessity, the state must take some leadership and responsibility in such instances. The committee agreed that these issues exist but expressed the sentiment that wherever possible the decisions should be made at the local level.

Burton Williams questioned whether the committee wanted to recommend continued involvement in the CZM program. It was decided to hold that decision until the program has been finalized. If the resulting program seemed to serve legitimate ends of the towns, it would be acceptable, if not the committee could recommend that it not be signed by the Governor.

Howard Gray suggested that a sub committee be established to review the management program which the state had recommended. The sub committee would report back to the policy committee any program suggestions which they felt could legitimately be made part of an improved CZM Program. Howard Gray, Joan Howard and Abbie Page agreed to serve on the committee.

Bruce Probert suggested that each town look closely at its assets and its liabilities in an attempt to identify problem areas which should be addressed in a CZM program. It was agreed that each committee member would formulate a list of assets/liabilities for his or her town and would send the list into the R.P.C. office before the next meeting so that lists could be compiled for discussion at the next meeting.

Abbie Page asked for the committee's response to a state level citizen advisory committee for CZM. It was felt that such a committee would serve no useful end and thus it was unanimously voted to add an amendment to the resolution stating the committee's feeling on the subject.

The next meeting was set for July 17th in Hampden.

The meeting was adjourned at 10:40 P.M.

KBC

Penobscot Valley
REGIONAL PLANNING COMMISSION

31 CENTRAL STREET BANGOR, MAINE 04401 TELEPHONE 947-0529

June 26, 1975

James B. Longley, Governor
State House
Augusta, Maine

Dear Governor Longley:

I am writing on behalf of the Coastal Zone Policy Committee of Penobscot Valley Regional Planning Commission to pass on to you the enclosed resolution which was unanimously adopted at the June 19th meeting of the Policy Committee. Present at the June 19 meeting were:

Joan Howard - Orrington Planning Board
Raymond Hamilton - Searsport Selectman (chairman)
Peter Garland - Searsport Town Manager/former U.S. Congressman
David Whitehouse - Searsport Board of Appeals/Economic Development Committee
Howard Gray - Stockton Springs Planning Board
Burton Williams - Past Chairman Frankfort Planning Board
Clyde MacDonald - Hampden Planning Board
Bruce Probert - Chairman, Searsport Planning Board
Inez Campbell - Searsport Planning Board
Don Ruttenberg - Searsport Planning Board

At the same meeting the committee requested that I extend to you an invitation to our next meeting to talk with them further about the resolution or any other aspects of the Coastal Zone Management Program. Our next meeting will be July 17th at 7:30 P.M. in the Hampden Town Hall. It is hoped that you will be able to attend.

Sincerely,

Katherine B. Carter

Katherine B. Carter
Planner

KBC:mjf

PENOBSCOT VALLEY REGIONAL PLANNING COMMISSION

TO: Members Coastal Zone Advisory Committee
FROM: Kay Carter
RE: July Meeting

This is to remind you that the next meeting of the Coastal Zone Policy Committee will be July 17 at 7:30 at Hampden Town Hall. The Town Hall is located on Rt. 1A opposite Hampden Academy. Don't confuse it with the Town Office which is located in Hampden Highlands on Rt. 1A

I have received a letter from Governor Longley indicating his interest in our resolution but saying that he will not be able to attend the July 17 meeting. Allen Pease has indicated that he will be able to attend the meeting. Allen, I believe, will be particularly interested in any input which our committee can give him regarding the Coastal Zone Program. Specific questions which we may wish to address with him include:

1. The desirability of a State-wide policy committee for C.Z.M.
2. The effectiveness of the mapping program. It's purpose, scale, usefulness at the local level, etc.
3. Elements of a Coastal Zone Management Program which would reflect the needs and desires of local people and municipalities.

Committee members may wish to add other topics for discussion with Allen Pease. This meeting will provide a good chance for us to directly affect both the direction of the C.Z.M. program and, potentially, the relationship between the state and the regional planning commissions. Some committee members may feel that it would be useful for the committee to get together before our meeting with Allen Pease to discuss what we will talk about with him. I am holding the evening of July 16 open for such a meeting. If anyone feels the need for such a meeting, please call this office to let me know. I will notify others and set a time and place.

Tentatively the agenda for the July 17 meeting will be:

1. Report of sub-committee reviewing management program.
2. Report on map review session in Stockton Springs
3. Discussion of C.Z.M. program with Allen Pease
4. Report and dicusssion of assets/liabilities

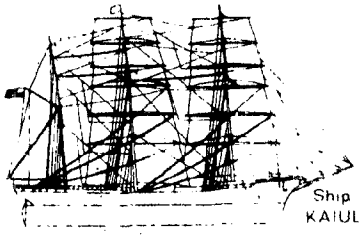
The time may dictate that the last topic be held over until the next meeting. In either case, we, in this office, will develop our input for the discussion by taking the regional viewpoint in hopes that our list can complement lists made on a town by town basis.

Hope to see you on July 17th in Hampden.

S M C R P C

JUNE 1, 1975 - AUGUST 31, 1975

CZMAC meetings were held at which the status of CZM was explained. Several meetings were also held to explain and make corrections on the maps.



SOUTHERN MID COAST REGIONAL PLANNING COMMISSION

(207) 443-9731 • FRONT STREET

MEMO

TO: Coastal Zone Management Advisory Committee

FROM: Franci Vinal, Planning Assistant FV

DATE: July 2, 1975

PLEASE SEE ATTACHED STAFF REPORT

I have scheduled an Advisory Committee meeting for Monday, July 28, 7:30 p.m. at the Wiscasset Municipal Building.

CZM is not a dead issue; there is a lot of work ahead in identifying Maine's needs and developing a CZM Program to meet those needs. The main purposes of the July 28 meeting are to let you know, first-hand, where things stand and to elicit suggestions about the best way to involve more coastal residents in developing coastal plans. Please come.

CZM -- Updated Report

On Friday June 27 the directors of coastal regional planning commissions met with State Planning Office Staff and Robert Knecht, Director of the federal Office of Coastal Zone Management. The discussion centered on SPO's plans for continuing CZM efforts in Maine and what types of programs are feasible under the federal guidelines for the Coastal Zone Management Act of 1972.

This is where things stand in Maine:

1. The State Planning Office is starting at "ground zero" with respect to developing a "management program" for coastal Maine. The planning phase of the CZM program (funded under section 305 of the Act) is continuing and an application for additional 305 funds will be submitted - probably in July or August.

2. The State Planning Office is exploring various ways to go about developing a "management program" for Maine. No decisions have been made. A committee of six SPO staff members, headed by Director Allen Pease, will be responsible for SPO's role in Maine's CZM efforts.

3. This time around the SPO will be involving local officials and residents from the beginning. The goal is to develop a plan for Maine, under the CZM Act, that meets the needs of Maine and Maine's coastal residents.

4. SMCRPC's current contract (for CZM work) with the SPO has been extended from June 30 to August 31 (with no extra funding). The future role of RPC's in Maine's CZM activities is uncertain, and depends in large part on the RPC's themselves.

As part of SMCRPC's participation in the CZM program (under our contract with the State Planning Office) 13 meetings were held during June so that people in this region could review (and suggest additions or corrections to) the resource maps which have been produced as part of the state's coastal planning effort. The maps will be at the Commission office through July 18; anyone who would like to review the maps should call the office and make arrangements. The following communities were <u>not</u> represented at any of the map review meetings: Bath, Boothbay, Bremen, Damariscotta, Georgetown, Harpswell, Newcastle, West Bath.

Staff Report on Coastal Zone Management--June 19, 1975
by Frances Vinal, Planning Assistant

The last meeting of the Coastal Zone Management Advisory Committee was held at Wiscasset High School on June 2. In addition to the 25 committee members there were a number of observers including two people from Congressman Emery's office. The major topic was planning and it was generally agreed that planning is necessary and that it should be done at the local level. The committee members present voted 14 to 11 to recommend to Governor Longley that the Coastal Zone Management Program in Maine be discontinued; I sent the Governor a letter, with copies to Maine's congressional delegation, informing him of this vote. A copy of my letter to the Governor and his response is included with this report.

In his letter the Governor states that he is delaying application for CZM "management funds"; the Governor indicates, however, that he supports the development of a Coastal Zone Management Program for Maine. The State Planning Office will be working on such a program during the coming year - one for the entire coast and one which is more responsive to the needs of coastal residents and towns. Alan Pease, the new director of the State Planning Office intends to take an active role in developing the program; one of his first priorities is involving more coastal residents and local decision-makers in the process.

Now is the time to become involved in helping the State Planning Office develop a "management program" for coastal Maine which meets the needs of the people and towns. Part of the problem this past spring was a lack of understanding by many people as to what "Coastal Zone Management" was all about; part of the problem with the State Planning Office's original "management program" was that no real attempt had been made to involve coastal residents in its design.

I would like to make the following recommendations concerning Commission involvement in the Coastal Zone Management "program development."

1. The Commission should remain actively aware of the progress being made on CZM "program development." The Commission is an organized voice for the majority of towns in the region and could sponsor an Advisory Committee at which all coastal towns could be represented.

2. The Advisory Committee should be maintained with broader and more organized membership. Until the State Planning Office can outline how it intends to go about developing a "management program" for coastal Maine, the committee could concentrate on becoming familiar with the federal guidelines for CZM and determining what the most important concerns of towns and people in this region are.

3. At its February 24 meeting the Advisory Committee identified the problems of taxation as being extremely critical to the future of this region. This issue (and/or other issues identified at the same meeting: housing, energy, jobs, intensive land use) should be studied with an eye to proposing alternative solutions. This could be done by the Commission as a whole, by the CZM Advisory Committee, or by other advisory committees which could be established. These problems could be and should be addressed in any planning program developed by the State Planning Office.

COPY

June 4, 1975

The Honorable James Longley
Governor of Maine
State House
Augusta, Maine 04333

Dear Governor Longley:

The Coastal Zone Management Advisory Committee in the Southern Mid Coast region met on June 2, 1975 and discussed Maine's application for Coastal Zone Management program approval. The Advisory Committee was established in January 1975 as an official committee of the Southern Mid Coast Regional Planning Commission. The committee has no official membership; any citizen living in the coastal portion of the Southern Mid Coast region is welcome to participate in and vote at any meetings of the Advisory Committee.

The discussion focused on planning and whether planning is needed in coastal Maine. There was a general consensus that planning is necessary and that it should be done on the local level.

The people attending this meeting voted 14 to 11 in favor of the following option (as stated in the June 2 memo from the State Planning Office to coastal regional planning commissions, which explained the alternatives sent to you by Allen Pease on May 27, 1975): "The fourth alternative would be to phase out the Coastal Zone Management Program altogether." It was requested that this vote be made a matter of record and that it be reported to you and to Maine's Congressional delegation.

I would like to emphasize that this vote is only a vote of individuals attending the June 2 meeting (a copy of the attendance list is enclosed) and does not necessarily reflect official Commission policy.

Sincerely,

Frances E. Vinal, Planning Assistant
(staff liaison to the CZMAC)

FEV:am

Enc.

cc: Allen Pease
Senator Edmund Muskie
Senator William Hathaway
Representative William Cohen
Representative David Emery

STATE OF MAINE
OFFICE OF THE GOVERNOR
AUGUSTA, MAINE
04330

JAMES B. LONGLEY
GOVERNOR

June 16, 1975

Ms. Frances E. Vinal
Planning Assistant
Southern Mid Coast Regional Planning
Commission
52 Front Street
Bath, Maine 04530

Dear Ms. Vinal:

I have read with interest the results of the meeting of the Coastal Zone Management Advisory Committee of the Southern Mid Coast Regional Planning Commission. As you may know, after careful consideration of this matter I have decided to delay making application for management funds under Section 306 of the Coastal Zone Management Act of 1972. The comments of groups such as the one you represent have figured importantly in this decision.

I do not feel, however, that it would be advisable to discontinue all coastal zone management activities at this time. In the future work will continue on the program development phase of coastal zone management with the intent of developing a program which is more responsive to the needs of Maine people.

I appreciate your interest in this important state program and particularly the time you have taken to give me the benefit of the thoughts of the Advisory Committee.

Sincerely,

James B. Longley
Governor

JBL:wjb

SOUTHERN MID COAST REGIONAL PLANNING COMMISSION

52 Front St., Bath, ME 04530
tel. 443-9735

TO: Members of the Coastal Zone Management Advisory Committee and other interested citizens

FROM: Franci Vinal, SMCRPC Staff

DATE: May 9, 1975

The next meeting of the Advisory Committee will be held on June 2, 1975 at 7:30 pm at the Wiscasset High School.

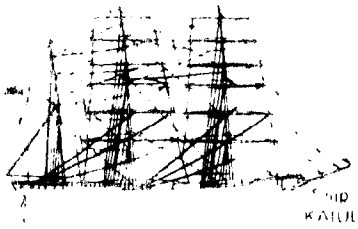
By June 2 we should know more about the status of the application for CZM Program approval and will be able to discuss the future role of the Advisory Committee in light of that information. You might say that the June 2 meeting will be an organizational meeting -- a time for the committee to set some goals for itself for the next few months. Whether the proposed management program is approved or not there is still a need for a citizen's advisory committee on coastal planning.

I am beginning to schedule meetings for the review and correction of the natural resource inventory maps; you will be receiving notice of the meetings soon. These meetings are planned for two or three adjacent towns, rather than a large area. Please encourage anyone that you know, especially people really familiar with their communities, to attend a meeting scheduled in their area.

If you have any suggestions about the role of the advisory committee or the CZM program, please feel free to call me.

Schedule for Meetings to Review Resource Maps
produced by Coastal Planning Group

Mapping Area	Towns Included	Meeting Places and Dates
5-1	Boothbay Boothbay Harbor Bristol South Bristol Southport Westport	South Bristol Town Hall, June 17, 7:00 p.m. Boothbay Harbor Fire Station, June 23, 7:30 p.m. Westport Town Hall, June 26, 7:30 p.m.
5-2	Alna Dresden Edgecomb Newcastle Wiscasset	Edgecomb Town Hall, June 4, 7:30 p.m. Wiscasset Municipal Building, July 1, 7:30 p.m.
5-3	Bremen Damariscotta Nobleboro Waldoboro	Nobleboro Central School, June 10, 7:30 p.m. Waldoboro Municipal Building, June 11, 7:30 p.m.
6-1	Arrowsic Brunswick Georgetown Harpswell Phippsburg West Bath	Brunswick Municipal Bldg.(courtroom) June 12,7:30p.m. Phippsburg Elementary School, June 18, 7:30 p.m. Arrowsic Town Hall, June 30, 7:30 p.m.
6-2	Bath Bowdoinham Richmond Topsham Woolwich	Bowdoinham Community School, June 9, 7:30 p.m. Bath-SMCRPC office, June 16, 7:00 p.m.



SOUTHERN MID COAST REGIONAL PLANNING COMMISSION

TO: First Selectmen, Planning Board Chairman, Conservation Commission Chairmen, Coastal Zone Management Advisory Committee

FROM: Franci Vinal, SMCRPC Staff

DATE: May 23, 1975

As you know, the staff of the Coastal Planning Group at the State Planning Office has been preparing maps of the resources in coastal Maine communities. These maps are intended for use by individuals involved in planning at all levels and to provide an overview to the resources in coastal Maine. The data has been gathered from existing sources wherever possible and by people and agencies with appropriate knowledge; much of the data has been field checked. The Coastal Planning Group wants to check the information with people in the towns before the maps are published, to ensure that they are as accurate and as useful as possible.

The Coastal Planning Group has divided the Southern Mid Coast region into five areas for mapping purposes; towns included in each mapping area are shown on the attached list. We have scheduled at least two map review meetings per mapping area. In scheduling the meetings it was assumed that people from a given town would all attend the same meeting, at the meeting place closest to home; each meeting, however, is open to people from any town in the mapping area.

It is hoped that you will encourage people who are really familiar with your town to attend the meeting and review the maps for completeness and accuracy. The number of people attending from each town is not as important as how well they know the resources in the town. There will be blank maps available if you want to copy some data at that time, and the maps will be at the Commission office in Bath during June.

A copy of the meeting schedule is enclosed. If you have any questions about these meetings, please call the office.

JUN 18 1974

NOTICE

OF

MEETING

Southern Maine Regional Planning Commission
General Commission Meeting

Tuesday, June 25, 1974, 7:30 p.m.
Court House, Alfred

The June General Commission meeting will be devoted to a discussion of two new programs for Maine which will have both immediate and long range impact on planning and land use. Topics for this program will be: Maine's new Assessing Area law and the Coastal Zone Management Act.

Raymond C. Halperin, Director of the State Bureau of Property Taxation will explain recent legislation requiring municipalities to be in primary assessing areas for the purpose of assessing property values. By 1977 municipalities or groups of municipalities will be required to employ a full time assessor to serve their areas. Mr. Halperin will discuss how this law will be implemented, what effect it will have on existing tax assessment practices and property valuations, and will answer questions about how the law may affect municipal planning and community development.

The second portion of the meeting program will be devoted to a discussion of SMRPC responsibilities under the Federal Coastal Zone Management Act. Under this program, the Planning Commission is being funded to work with the municipalities of South Berwick, Eliot, Kittery, York, Wells, Kennebunk, Kennebunkport, Arundel, Biddeford, Saco and Old Orchard Beach to undertake detailed resource inventory and mapping and to work with local officials and citizens in determining priorities for managing land uses in the coastal area. Such priorities will include land acquisition, zoning, and resource protection and management. After July of 1975, these municipalities will be funded by the Federal government to carry out the management priorities established in the planning phase.

Abbie Page, Planning Coordinator with Maine's Coastal Planning Group, will discuss how SMRPC's efforts will fit into the State's overall coastal planning program and elaborate on the types of management programs envisioned by the Federal statute.

This meeting should be of particular interest to municipal officers, planning boards and conservation commissions as well as the general public who will be affected by the policies and priorities established under these programs.

SMCRPC NEWSLETTER

Southern Mid Coast Regional Planning Commission — *July 1975*

Chairman: Arthur P. Curtis
Executive Director: Dana A. Little

Editor: Frances Vinal
tel. 443-9735

THE NEXT REGULAR FULL COMMISSION MEETING
WILL BE SEPTEMBER 18 AT 7:30 P.M.

* * * * * * * * *

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MINUTES OF THE JUNE COMMISSION MEETING

Alna:
Arrowsic: H. Sullivan, M. Sullivan
Bath: Gaul, Kay
Boothbay:
Boothbay Harbor:
Bowdoin:
Bowdoinham: Curtis
Bremen:
Bristol:
Brunswick: Dwyer
Damariscotta: Hunter
Dresden:
Edgecomb: French
Georgetown: Bracciotti
Harpswell:
Jefferson:
Monhegan Plt:
Newcastle:
Nobleboro:
Phippsburg: Morse
South Bristol: Fink, Sewall
Southport:
Topsham: Brillant, Lamarre
Waldoboro: Lee, Spofford
West Bath:
Westport:
Wiscasset: Rafter
Woolwich: Thurston

Cumberland County:
Lincoln County:
Sagadahoc County: Kimball

Staff present: Little, Vinal, Graback
Others: Daniel Webster, Jr., Maine Dept. of Transportation; Max Chadwick, WKXA; J. Peterson, J. Buffum, observers

The June 19, 1975 meeting of the Southern Mid Coast Regional Planning Commission was called to order by Chairman Arthur Curtis at 7:35 p.m. in the Wiscasset Municipal Building. The minutes of the May meeting were approved with one correction: the addition of Arthur Curtis of Bowdoinham to the attendance list. Treasurer Joseph Brillant reported a checking balance of $3,489.24 and a savings account balance of $12,243.12; he also reported that Commission expenditures are within budget allocations. The treasurer's report was approved.

Daniel Webster, Director of Planning for Maine's Department of Transportation, reported on transportation planning activities in the region. [Details of his report are included elsewhere in the Newsletter].

Director Little explained to the Commission about the funds available from the federal Urban Mass Transportation Authority for doing a feasibility study of public transportation. The Commission has been requested by the Bath and Brunswick Councils to look into applying for funds. Little suggested that a citizens committee be formed. It was moved by Rafter, seconded by Fink, and VOTED that an advisory committee of volunteers and recruits be appointed by the staff to work with the staff in making an application for UMTA funds to do a public transportation feasibility study for the Southern Mid Coast region. Ken Fink suggested that the Committee should first determine that there is a need for the application.

The Bylaws Committee report was given by Director Little. Copies of the present bylaws with proposed changes indicated were distributed. [Copies are included for Commission representatives who were not at the June meeting]. The Bylaws Committee (David Soule, Jr., of Westport and Jane Tucker of Wiscasset) will make a final report in writing later this summer; the Commission will vote on the proposed changes at the September meeting.

Frances Vinal, Planning Assistant, reported on the present status of the Coastal Zone Management program in Maine -- a copy of the report is attached. Jane Sewall, a South Bristol resident who has been actively involved with the Coastal Zone Management Advisory Committee this spring, suggested that the Advisory Committee could undertake a study of tax reform and asked that the Commission consider the following points: (1) How much support could the Commission provide a group studying tax reform; (2) Would the Commission support such a study if it were sponsored by the County Commissioners; (3) the Committee needs a moderator for its meetings -- a person who could excercise firm control but who wouldn't take sides.

Following discussion, it was moved by Parker, duly seconded, and VOTED to have the next regular meeting in September [September 18].

The meeting adjourned at 9:45 p.m.

Respectfully submitted,

Frances Vinal, Planning Assistant

TRANSPORTATION PLANNING IN THE SOUTHERN MID COAST REGION

At the June SMCRPC meeting Daniel Webster, Director of Planning for Maine's Department of Transportation spoke about plans DOT has for this area. First, however, he explained that DOT was created in 1972 and represents a consolidation of many former state agencies: Highway Commission, Airport Authority, Civil Aeronautics Bureau, Port Authority, State Ferry Service. In the past transportation planning meant highway planning; today DOT is involved in all types of transportation planning.

Webster broke his talk into five topic areas:

Highway & Bridge Improvement DOT's intent is to maintain the present system; new construction is limited to completion of the interstate system, correcting unsafe situations and fixing specific problem areas. Seven projects are scheduled for this region over the next two years. (1) Complete I-95 between Topsham and Gardiner; (2) Begin preliminary studies for Wiscasset By-Pass; (3) Resurface sections of Routes 129 and 130 in Damariscotta and Bristol; (4) Stopgap measure on Route 127 in Georgetown; (5) safety project in Jefferson at intersection of Routes 213 and 126; (6) Work on a small bridge on Route 197 in Richmond; (7) Repair the abutments of the Gurnet Bridge on Route 24 (Harpswell-Brunswick line).

Carlton Bridge The major problem with the Carlton Bridge between Bath and Woolwich is that portions of the deck need replacement. Funds have already been allocated for this project and DOT hopes to let the contract out for bid in August. DOT is aware of the problems that will arise while the bridge is being repaired and is looking at all alternatives for handling the job.

Wiscasset By-Pass DOT feels that a by-pass of Wiscasset by U.S. Route One is very important and can no longer be delayed. Although no major work will be done during the next two years DOT will be conducting preliminary engineering studies and studying potential rights-of-way for the by-pass.

Access to Industrial Park in Woolwich Initially DOT did not want to allow an access to the park from Route One but they are currently negotiating with the town and the promoters of the Park to come up with a solution to the access problem that is acceptable to all parties.

Peninsular Routes Webster commented that DOT is aware of local concerns about the impact past DOT projects have had on the peninsulas. DOT's present approach of trying to maintain all roads and only addressing specific problem areas ("stopgap" measures) rather than undertaking major new construction will help improve the situation. In addition DOT has been trying to get federal officials to reduce the standards required for road repairs and construction on peninsula routes (federal standards are based on peak usage and for most peninsular routes this is much higher than a year-round average); thus far they have had some success.

Questions and Answers The following points were brought out during the question period:

Federal officials are becoming more flexible in their dealings with the state. There are proposals which would allow states to keep some of the federal gas tax money (rather than sending it to Washington for redistribution.) Webster noted that Maine gets back nearly all the 4¢ per gallon federal tax on gasoline that is collected in Maine and sent to Washington.

Long range plans for Route One depend on traffic patterns. Because of the energy crisis traffic patterns are no longer predictable. DOT is predicting, however, that growth will continue, although slowly, and that eventually there will be a need for further expansion.

One person commented that perhaps DOT's planning efforts were too diverse -- that perhaps they were planning for the sake of planning and not addressing the real problems and issues.

It was also noted that few municipal officers were at this meeting to find out about opportunities for their towns.

In response to a question about the billboard removal program Webster said that progress was being made and noted that the program only applied to primary roads.

Webster supports public transportation planning for Maine but feels that "rubber tire" vehicles are most feasible; he also thinks that fixed routes won't work in much of the state. He reported that efforts at encouraging carpooling in Bangor, Lewiston/Auburn and Augusta have met with little response.

It was pointed out that what is really needed in transportation planning is a serious attempt to change people's philosophies of transportation so that they will want to carpool, use public transportation, drive slower, etc. etc.

TRANSPORTATION STUDY COMMITTEE

The following persons have been named to assist Commission staff in considering an application to the Urban Mass Transportation Administration for a survey of public transportation needs in the region (SEE minutes of June Commission meeting):

Mark L. Haley, Bath attorney
Robert D. Havenstein, President, Airport Transportation Co., Inc.
Sanford R. Mautner, Boothbay Harbor
Robert Ouelette, Treasurer, Brunswick Transportation Co., Inc.
Howard E. Sullivan, President, Bath Bus Service
Hattie Webber, Director, Coastal Economic Development, Inc.

COASTAL ZONE MANAGEMENT [Also see Staff Report, on blue paper]

On Friday June 27 the directors of Coastal regional planning commissions met with State Planning Office Staff and Robert Knecht, Director of the federal Office of Coastal Zone Management. The discussion centered on SPO's plans for continuing CZM efforts in Maine and what types of programs are feasible under the federal guidelines for the Coastal Zone Management Act of 1972.

This is where things stand in Maine:

1. The State Planning Office is starting at "ground zero" with respect to developing a "management program" for coastal Maine. The planning phase of the CZM program (funded under section 305 of the Act) is continuing and an application for additional 305 funds will be submitted - probably in July or August.

Staff Report on Coastal Zone Management--June 19, 1975
by Frances Vinal, Planning Assistant

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In his letter the Governor states that he is delaying application for CZM "management funds"; the Governor indicates, however, that he supports the development of a Coastal Zone Management Program for Maine. The State Planning Office will be working on such a program during the coming year - one for the entire coast and one which is more responsive to the needs of coastal residents and towns. Alan Pease, the new director of the State Planning Office intends to take an active role in developing the program; one of his first priorities is involving more coastal residents and local decision-makers in the process.

Now is the time to become involved in helping the State Planning Office develop a "management program" for coastal Maine which meets the needs of the people and towns. Part of the problem this past spring was a lack of understanding by many people as to what "Coastal Zone Management" was all about; part of the problem with the State Planning Office's original "management program" was that no real attempt had been made to involve coastal residents in its design.

I would like to make the following recommendations concerning Commission involvement in the Coastal Zone Management "program development."

1. The Commission should remain actively aware of the progress being made on CZM "program development." The Commission is an organized voice for the majority of towns in the region and could sponsor an Advisory Committee at which all coastal towns could be represented.

2. The Advisory Committee should be maintained with broader and more organized membership. Until the State Planning Office can outline how it intends to go about developing a "management program" for coastal Maine, the committee could concentrate on becoming familiar with the federal guidelines for CZM and determining what the most important concerns of towns and people in this region are.

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COPY

June 4, 1975

The Honorable James Longley
Governor of Maine
State House
Augusta, Maine 04333

Dear Governor Longley:

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The people attending this meeting voted 14 to 11 in favor of the following option (as stated in the June 2 memo from the State Planning Office to coastal regional planning commissions, which explained the alternatives sent to you by Allen Pease on May 27, 1975): "The fourth alternative would be to phase out the Coastal Zone Management Program altogether." It was requested that this vote be made a matter of record and that it be reported to you and to Maine's Congressional delegation.

I would like to emphasize that this vote is only a vote of individuals attending the June 2 meeting (a copy of the attendance list is enclosed) and does not necessarily reflect official Commission policy.

Sincerely,

Frances E. Vinal, Planning Assistant
(staff liaison to the CZMAC)

FEV:sm

Enc.

cc: Allen Pease
Senator Edmund Muskie
Senator William Hathaway
Representative William Cohen
Representative David Emery

STATE OF MAINE
OFFICE OF THE GOVERNOR
AUGUSTA, MAINE
04330

JAMES B. LONGLEY
GOVERNOR

June 16, 1975

Ms. Frances E. Vinal
Planning Assistant
Southern Mid Coast Regional Planning
Commission
52 Front Street
Bath, Maine 04530

Dear Ms. Vinal:

I have read with interest the results of the meeting of the Coastal Zone Management Advisory Committee of the Southern Mid Coast Regional Planning Commission. As you may know, after careful consideration of this matter I have decided to delay making application for management funds under Section 306 of the Coastal Zone Management Act of 1972. The comments of groups such as the one you represent have figured importantly in this decision.

I do not feel, however, that it would be advisable to discontinue all coastal zone management activities at this time. In the future work will continue on the program development phase of coastal zone management with the intent of developing a program which is more responsive to the needs of Maine people.

I appreciate your interest in this important state program and particularly the time you have taken to give me the benefit of the thoughts of the Advisory Committee.

Sincerely,

James B. Longley
Governor

JBL:wjb

SUBDIVISION REVIEW WORKSHOP

A workshop on Subdivision Review will be held on June 25 from 7-10 p.m. at Morse High School in Bath. The workshop is intended for planning board members (both new and old) and anyone else who has an interest in the local subdivision review process, such as code enforcement officers and selectmen. Notices and registration forms will be sent to planning board chairmen and first selectmen later this month.

MEETINGS TO REVIEW RESOURCE MAPS

As part of the State Planning Office's coastal planning program staff of the Coastal Planning Group have been preparing (with the assistance of other state agencies, University of Maine, and regional planning commissions) maps showing the resources in coastal Maine. These maps are intended to be used by people involved with planning at all levels and will be available to anyone who is interested after they are published. Before the maps are published, however, the Coastal Planning Group wants to have them reviewed by people living in the area who are familiar with their community and its resources.

The SMCRPC staff will be holding 12 meetings throughout the region during June in order for people to review the resource maps and suggest additions or make corrections. Notice of these meetings has been sent to the chairmen of all coastal planning boards, conservation commissions, and boards of selectmen. Please call the Commission office if you want to know more about these meetings or want to know when meetings are scheduled which will cover your town.

BYLAWS REVISION

It became apparent at the April Commission meeting that the Commission Bylaws (adopted in 1969 and amended in 1973) need revision. The present bylaws are unclear about Commission membership; according to the bylaws a town can continue to be a member for one year after a Town Meeting or Council has voted not to renew membership and no provision is made for member municipalities or counties which do not pay their full assessment. There may also be a need to change the method of holding meetings or the date of the annual meeting.

At the May Commission meeting, David Soule, Jr., of Westport (882-6875 or 882-5511) and Jane Tucker of Wiscasset (882-7364) were appointed as a committee to study the bylaws and recommend revisions. Feel free to call either of them or Dana Little or the Commission staff if you have any suggestions.

COASTAL ZONE MANAGEMENT

As the newsletter "goes to press" the status of the management program proposed for the Mid Coast segment of Maine is still uncertain. Governor Longley has not yet signed the application to the U.S. Department of Commerce and is reported to have some reservations about the program. The Commission's current contract with the State Planning Office under CZM terminates on June 30.

DATES TO REMEMBER

June 19 SMCRPC Meeting 7:30 p.m. Wiscasset Municipal Building

June 25 Subdivision Review Workshop 7-10 p.m. Morse High School, Bath

June 26 Maine Association of Planners meeting all day - Scarboro
Open to anyone involved with planning including RPC representatives and planning board members. Call office for details.

2. The State Planning Office is exploring various ways to go about developing a "management program" for Maine. No decisions have been made. A committee of six SPO staff members, headed by Director Allen Pease, will be responsible for SPO's role in Maine's CZM efforts.

3. This time around the SPO will be involving local officials and residents from the beginning. The goal is to develop a plan for Maine, under the CZM Act, that meets the needs of Maine and Maine's coastal residents.

4. SMCRPC's current contract (for CZM work) with the SPO has been extended from June 30 to August 31 (with no extra funding). The future role of RPC's in Maine's CZM activities is uncertain, and depends in large part on the RPC's themselves.

As part of SMCRPC's participation in the CZM program (under our contract with the State Planning Office) 13 meetings were held during June so that people in this region could review (and suggest additions or corrections to) the resource maps which have been produced as part of the state's coastal planning effort. The maps will be at the Commission office through July 18; anyone who would like to review the maps should call the office and make arrangements. The following communities were not represented at any of the map review meetings: Bath, Boothbay, Bremen, Damariscotta, Georgetown, Harpswell, Newcastle, West Bath.

An Advisory Committee meeting has been scheduled for July 28, 7:30 p.m., at the Wiscasset Municipal Building. The main purpose of this meeting is to let Advisory Committee members know what's going on and to elicit suggestions about involving more people in Maine's CZM efforts.

SOLID WASTE MEETING

An informational meeting on the status of solid waste management activity in the region is scheduled for Tuesday, July 8, at 7:30 p.m. at Bath City Hall Auditorium. There will be opportunity to review and discuss (1) actions of the 107th Legislature with respect to solid waste management, (2) Maine Department of Environmental Protection regulations and municipal time tables for compliance with applicable state and federal policies, and (3) recycling potential in the region and the general "state of the art" in solid waste handling techniques. Municipal officials and others interested are urged to attend this meeting.

STATE PLANNING OFFICE ADMINISTRATIVE STUDY

At the June Commission meeting, mention was made of an administrative study of the State Planning Office to be undertaken this summer. The Commission office has received this additional information.

A contract has been awarded to Charles M. Evans & Associates, Tremont St., Boston to "conduct an administrative study of the State Planning Office of the State of Maine. This study should concern itself with the programs conducted by the State Planning Office and the organization structure and operational methods used to carry them on. It should also include an analysis and appraisal of work performed and make reports of the findings and recommendations concerning allocations and reallocations of assigned services." The final completion date for the contract is September 15, 1975; total price of the contract is $12,500.

The administrative study will include an analysis of SPO's relationship to state, regional and local agencies; there will be an opportunity later this summer for the regional planning commissions in Maine to provide input to the consultant on this item.

COMMISSION ON MAINE'S FUTURE

The Commission on Maine's Future was established by the 106th Legislature and is charged with preparing a proposed growth and development policy for the State of Maine by June 30, 1977. The Commission is chaired by Halsey Smith of Freeport and is composed of 40 people from all over the state. Twenty-seven members were appointed by Governor Longley this spring; the remaining 13 are ex-officio members -- 6 State Senators (appointed by the Senate President), 6 State Representatives (appointed by the Speaker of the House) and the Director of the State Planning Office. A complete list of members is available from the State Planning Office, 184 State Street, Augusta, ME 04333.

The Commission has met twice this spring and plans to meet monthly; the next meeting will be July 18-19. At the first meeting a 12-person Procedures Committee was appointed; it was felt that a smaller group of people meeting weekly could better deal with the many details involved at the beginning of the Commission's work. SMCRPC receives copies of the minutes of both the full Commission and the Procedures Committee. For more information you can contact the Commission on Maine's Future in care of the State Planning Office or any member of the Commission. Four Commission members live in the Southern Mid Coast area:

Roberta Weil (Vice-chm.)
South Harpswell (833-6891)

Edward Myers
Walpole, ME (563-3955)
(also on Procedures Committee)

Ester Hawley Dougherty
42 Summer Street
Bath (443-3462)

Rep. Linwood Palmer
W. Neck Road
Nobleboro (563-5317)

BYLAWS COMMITTEE

The Bylaws Commitsee met in early June and came up with some proposed changes in the Commission Bylaws. Copies of the Bylaws with the proposed changes indicated were distributed at the June meeting and are being sent to all Commission representatives. Comments or further suggestions should be sent to the Commission office or to June Tucker, Lee St., Wiscasset 04578 (882-7364) or David Soule, Jr., Westport 04578 (882-6875, office: 882-5511).

H C R P C

JUNE 1, 1975 - AUGUST 31, 1975

Work continued with the CZMAC during this time despite the uncertainty of the program. The CZMAC unfortunately became bogged down in procedural details, but with the confusion at the State level as to the proper role of the CZMAC's. Agendas, minutes are attached.

A lengthy series of meetings to review the maps was also held, and the schedule is included.

Coastal Zone Management Advisory Committee

June 18, 1975 Meeting

(Draft) Agenda and Meeting Rules
[Open to Discussion and Amendment]

I. Introductions, Opening Remarks
- Bob Cossette, HCRPC Director

II. Amendment and Approval of Agenda and Rules

III Election of a moderator (for this meeting only) from the floor

IV. Recommendations of the Subcommittee on Organization

A. Presentation and explanation of each report (10 minutes each) - LaRue Spiker & James Sargent; James Russell

B. Speakers from the floor shall have 3 minutes each to ask questions or comment on the report. No one shall be recognized a second time until everyone has spoken who wishes to speak. Discussion to be cut off at the end of 40 minutes.

C. Rebuttal by persons presenting the reports

D. Motion on acceptance and/or revision of the recommended plans from the floor. Vote on the motion.

E. Discussion on methods for presentation of adopted recommended plan to the HCRPC.

V. "The CZM program and the CZMAC as they relate to the work of the HCRPC"
- Bob Cossette

A. HCRPC funding to continue CZM
B. The priorities of the towns and the HCRPC for 1975-76

Questions/Discussion

VI. Recent developments in the CZM Program
- Michael McMillan, State Planning Office

Questions/Discussion

VII. Proposals for action

A. Future of the CZMAC as a committee of the HCRPC

B. Next meeting

SUGGESTED RULES OF THE MEETING ON ORGANIZATION
(to be voted on by the members attending)
(except points 1 and 2)

1. Moderator to be elected from the floor.

2. Each report on suggested organization shall be sent to CZMAC member (or mailing list) by mail as long before the June meeting as possible with a cover letter explaining the history of the ad hoc organization committee.

3. At the June meeting ten minutes shall be allowed for presentation and explanation of each report. (20 minutes.)

4. Speakers from the floor shall have three minutes each to ask questions or comment on the reports -- no one to be recognized a second time until everyone has spoken who wishes to speak. Discussion to be cut off at the end of 40 minutes.

5. "Rebuttal" by persons presenting the reports (three minutes each).

6. Motion on acceptance and/or revision of the recommended plans from the floor. Vote on the motion.

ORGANIZATION OF THE CZMAC

RECOMMENDATION #1

PURPOSE

(1) To assist the State Planning Office and the Hancock County Regional Planning Commission in obtaining broad citizen input on the development of a coastal zone management plan for the midcoast region of Maine under the provisions of the federal Coastal Zone Management Act of 1972. (2) To advise the SPO and the HCRPC on the development of a coastal zone management plan. 3) To recommend policies in regard to the coastal zone management plan to the SPO, and such other public officials and private groups as may be indicated.

STEERING COMMITTEE

A steering committee shall be established to aid in the work of the Coastal Zone Management Advisory Committee consisting of a chairman, vice chairman, and three project coordinators. One member of the steering committee shall be a member of the HCRPC. There shall be two ex officio members, one from the SPO staff and one from the HCRPC staff.

Duties of the steering committee: (1) Set up the agenda for the regular monthly meetings, notices to be sent from the HCRPC office. (2) Followup on special projects as outlined below. (3) Liaison with the SPO and HCRPC; it must be fully understood that any member of the CZMAC retains full rights to make any contact directly with either agency which he/she deems advisable. (4) Upon occasion to recommend special projects to the consideration of the full membership of the CZMAC; projects shall also be suggested by any member of the CZMAC

Duties of the officers: The chairman shall moderate the regular monthly meetings of the CZMAC, call extra meeting of CZMAC or the steering committee where necessary or upon written demand of ten members of CZMAC; shall be an ex officio member of subcommittees of CZMAC upon the request of the subcommittee in question.

The vice chairman shall act in the absence of the chairman.

Project coordinators shall be responsible for follow up with ad hoc subcommittees on special projects to provide some assurance that the projects are consummated as directed by CZMAC and that the results are brought back to CZMAC for decision on any further action that may be needed

Election and/or appointment of the steering committee: CZMAC members to elect four members of the steering committee; one member to be appointed by the HCRPC. Those elected by CZMAC will serve for six month terms, except that any project coordinator involved with a subcommittee on a special project that is not complete at the end of the term shall continue to serve until the project is complete, then he/she shall be replaced by election by the membership at the regular monthly meeting following for a six month term.

An ad hoc nominating committee shall be appointed by the chair one month before elections to establish a slate of nominees for the steering committee. Ballots shall be sent to CZMAC members at least two weeks before

the meeting at which elections are held. They may be marked and returned by mail to the HCRPC office or returned by hand at the meeting during which the election is scheduled. The steering committee shall organize itself (decide who holds what offices). The members of the first steering committee shall be elected from the floor at the regular June meeting.

Recommended by

James Sargent

LaRue Spiker

ORGANIZATION OF THE CZMAC

RECOMMENDATION # 2

This report is being submitted late, which turned out to be an advantage! I have read the report offered by Jim Sargent and LaRue Spiker and find that I am in basic agreement with its suggestions. This surprised me since after the meeting of the ad hoc committee on organization I had the impression that they intended to submit a report which did not necessarily call for a chairman and which would not lean heavily on a clear format and structure for the CZMAC.

I'm happy to say that I was wrong. Since we do seem to be headed in the same direction, I would like to offer this report as a set of suggested small amendments to their recommendation, rather than writing a second recommendation from scratch, which would be needlessly complicated.

First though, I'd like to emphasize the positive points which I feel their recommendation contains; clear statement of purpose and duties; creation of a steering committee; provision for selecting a chairman; provision for reporting to and dealing with the HCRPC, the SPO, and public and private groups; and short, flexible, six month terms of office.

In the following proposed revision of the Sargent/Spiker recommendation, words which would be unchanged are printed normally, words which I suggest deleting are printed between parentheses with a line through them, and words which I suggest adding are underlined. The small circled numbers in the margins are reference marks for the commentary which follows the proposed revision.

(1) ORGANIZATION PLAN (OF) FOR THE CZMAC

PURPOSE

(1) To assist the State Planning Office and the Hancock County Regional Planning Commission in obtaining broad citizen input on the development of a coastal plan for the midcoast region of Maine under the provisions of the federal Coastal Zone Management Act of 1972. (2) To advise the SPO and the HCRPC on the development of a coastal zone management plan. (3) To recommend policies in regard to the coastal zone management plan to the SPO, the HCRPC, and such other public officials and private groups as may be (~~indicated~~) interested. (4) If and only if it is clear that a CZM 306 Program will not ever be put into effect for the midcoast region and also that CZM 305 funds are exhausted and will not continue, to serve, under the revised name of Coastal Zone Concerns Advisory Committee, as a body advising the SPO, the HCRPC, and such other public officials and private groups as may be interested on any matter affecting the coastal area.

(2)

(3)

STEERING COMMITTEE

A steering committee shall be established to aid in the work of the CZMAC consisting of a chairman, vice-chairman, and three project coordinators. At least one member of the steering committee shall be a member of the HCRPC. There shall be two ~~(ex-officio members)~~ non-voting representatives, one from the SPO and one from the HCRPC staff.

(4)

DUTIES OF THE STEERING COMMITTEE

(1) Set up the agenda for the regular monthly meetings, notices to be sent from the HCRPC office. (2) Follow up on special projects as outlined below. (3) Liason with the SPO and HCRPC; it must be fully understood that any member of the CZMAC retains full rights, as an individual, to make any contact directly with either agency which he/she deems advisable. (4) Upon occasion to recommend special projects to the consideration of the full membership of the CZMAC; projects shall also be suggested by any member of the CZMAC.

(5)

DUTIES OF THE OFFICERS

The chairman shall moderate the regular monthly meetings of the CZMAC; call extra meetings of CZMAC or the steering committee where necessary or upon written demand of ten members of CZMAC; shall be an ex officio member of subcommittees of CZMAC ~~(upon request of the subcommittee in question.)~~

(6)

The vice-chairman shall act in the absence of the chairman.

Project coordinators shall be responsible for follow up with ad hoc subcommittees or special projects to provide some assurance that the projects are consumated as directed by CZMAC and that the results are brought back to the CZMAC for decision or any further action that may be needed.

ELECTION ~~(AND/OR APPOINTMENT)~~ OF THE STEERING COMMITTEE

(7)

CZMAC members to elect four members of the steering committee; one member to be ~~(appointed)~~ elected by the HCRPC from among its own present and former members and alternates. ~~(These elected by CZMAC)~~

(8)

All members will serve for six month terms. ~~(except that)~~ Any project coordinator involved with a subcommittee on a special project that is not complete at the end of ~~(the)~~ his/her term ~~(shall continue to serve until the project is complete; then he/she shall be replaced by election by the membership at the regular monthly meeting following for a six month term.)~~ may choose between: A. continuing to coordinate that project until complete and, during this period, serving as a non-voting advisor to the steering committee; or B. passing his/her role as coordinator of that project to another project coordinator.

(9)

(10) An ad hoc nominating committee shall be ~~appointed by the chair~~ elected by the CZMAC ~~one month~~ two months before elections to establish a slate of nominees for the steering committee. The (11) nominating committee shall make its report one month before elections are to be held; at this time nominations from the floor will also be in order. Secret ballots shall be sent to CZMAC members who have attended one or more CZMAC meetings in the previous (12) six months at least two weeks before the meeting at which elections are held. Ballot envelopes which must be signed on the outside by voting members will be provided with the anonymous ballots. (13) ~~They~~ These may be ~~marked and~~ returned by mail to the HCRPC office or returned by hand at the meeting for which the election is scheduled. An HCRPC staff person shall serve as ballot clerk. The steering committee shall organize itself (decide who holds what office) (14) every six months after the election or re-election of its members. The four CZMAC members of the first steering committee shall be nominated and elected from the floor at the regular June, 1975 meeting. Their first duty shall be to report the CZMAC's adoption of (15) this organization plan to the HCRPC to see if the HCRPC will endorse it and elect a member to the steering committee.

COMMENTS

(1.) If we adopt this, its title should reflect its function.

(2.) "Indicated" by whom? "interested" seems more flexible and appropriate.

(3.) "If and only if...." If the CZM Program doesn't go through for political or other reasons, there would, I feel, still be a strong interest in a public forum of the sort this group started out to be. The SPO assures us that the Program lives, but they haven't always been able to live up to their promises. Let's plan ahead so we won't have to reorganize another committee if the Program falters.

(4.) According to Roberts' Rules of Order ex officio members can vote in any committee proceeding. I do not feel that paid staff persons should be allowed to vote. This would be a conflict of interest as they would in effect be giving themselves advice on the behalf of the public.

(5.) Of course members should retain their personal rights, but it should also be clear whether or not they are acting on behalf of the full CZMAC.

(6.) Again according to Roberts, standard procedure is for the chairman to be ex officio member of all subcommittees. I see no reason to deviate from this.

(7.) It is my experience that, within the HCRPC, elections generate more interest and involvement than appointments.

(8.) The HCRPC should have the same flexibility in retaining or replacing its member as the public.

(9) Even though we don't want them to, some of these projects may drag on or be prolonged by stunning successes or by circumstances beyond our control. It would be fairer to give the retiring individual a choice. Also, God forbid, an unscrupulous individual could prolong his term of office by holding up a project. Finally, if my suggestion on balloting (see below) is adopted, having elections at odd times rather than every six months would represent an unfair burden on the HCRPC staff.

(10) Roberts cautions against having nominating committees appointed by the chair. Election is a preferable procedure.

(11) The nominating committee needs time to meet and then make a report. Nominations from the floor should always be called for, in the interest of democratic proceedings. Secret ballot is also a democratic right.

(12) One meeting per six months is not asking too much. If we don't do this, there will be no definition of membership. People who attended the first meeting and said to hell with it could be voting five years from now. HCRPC postal costs for elections could become staggering, and the steering committee might not be representative of those really interested in CZMAC.

(13) To insure secret ballots as under no. 11, and also to insure that no one votes twice.

(14) Terms of office need to be specified.

(15) Self-explanatory.

Submitted by

Jim Russell

ORGANIZATION PLAN FOR THE CZMAC

[Approved by the CZMAC June 18, 1975]

PURPOSE

(1) To assist the State Planning Office and the Hancock County Regional Planning Commission in obtaining broad citizen input on the development of a coastal zone management plan for the midcoast region of Maine under the provisions of the federal Coastal Zone Management Act of 1972. (2) To advise the SPO and the HCRPC on the development of a coastal zone management plan. (3) To recommend policies in regard to the coastal zone management plan to the SPO, the HCRPC, and such other public officials and private groups as may be indicated by the CZMAC members. (4) If and only if it is clear that a CZM 306 Program will not ever be put into effect for the midcoast region and also that CZM 305 funds are exhausted and will not continue, to serve, under the revised name of Coastal Zone Concerns Advisory Committee, as a body advising the SPO, the HCRPC, and such other public officials and private groups as may be interested on any matter affecting the coastal area.

STEERING COMMITTEE

A steering committee shall be established to aid in the work of the CZMAC consisting of a chairman, vice-chairman, and three project coordinators. At least one member of the steering committee shall be a member of the HCRPC. There shall be two non-voting representatives, one from the SPO and one from the HCRPC staff.

DUTIES OF THE STEERING COMMITTEE

(1) Set up the agenda for the regular monthly meetings, notices to be sent from the HCRPC office. (2) Follow up on special projects as outlined below. (3) Liason with the SPO and HCRPC; it must be fully understood that any member of the CZMAC retains full rights, as an individual, to make any contact directly with either agency which he/she deems advisable. (4) Upon occasion to recommend special projects to the consideration of the full membership of the CZMAC; projects shall also be suggested by any member of the CZMAC.

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The chairman shall moderate the regular monthly meetings of the CZMAC; call extra meetings of CZMAC or the steering committee where necessary or upon written demand of ten members of CZMAC; shall be an ex officio member of subcommittees of CZMAC.

The vice-chairman shall act in the absence of the chairman.

Project coordinators shall be responsible for follow up with ad hoc subcommittees or special projects to provide some assurance that the projects are consumated as directed by CZMAC and that the results are brought back to the CZMAC for decision or any further action that may be needed.

ELECTION OF THE STEERING COMMITTEE

CZMAC members to elect four members of the steering committee; one member to be elected by the HCRPC from among its own present and former members and alternates. All members will serve for six month terms. Any project coordinator involved with a subcommittee on a special project that is not complete at the end of his/her term may choose between: A. continuing to coordinate that project until complete and, during this period, serving as a non-voting advisor to the steering committee; or B. passing his/her role as coordinator of that project to another project coordinator.

An ad hoc nominating committee shall be elected by the CZMAC two months before elections to establish a slate of nominees for the steering committee. The nominating committee shall make its report one month before elections are to be held; at this time nominations from the floor will also be in order. Secret ballots shall be sent to CZMAC members who have attended one or more CZMAC meetings in the previous six months at least two weeks before the meeting at which elections are held. Ballot envelopes which must be signed on the outside by voting members will be provided with the anonymous ballots. These may be returned by mail to the HCRPC office or returned by hand at the meeting for which the election is scheduled. An HCRPC staff person shall serve as ballot clerk. The steering committee shall organize itself (decide who holds what office) every six months after the election or re-election of its members. The four CZMAC members of the first steering committee shall be nominated and elected from the floor at the regular June, 1975 meeting. Their first duty shall be to report the CZMAC's adoption of this organization plan to the HCRPC to see if the HCRPC will endorse it and elect a member to the steering committee.

HCRPC
6/75

Coastal Zone Management Advisory Committee

Summary of Meeting Held June 18, 1975 in Ellsworth (#6)

Attendance

Phillip Adler, Ellsworth
David Holstein, Tremont
Ellen Lehto, Sullivan
Oskar Pederson, Castine
A. Clayton Pomroy, Hancock
Jane Rupp, Mt. Desert
Elizabeth Russell, Mt. Desert
James Russell, Mt. Desert
James Sargent, Bar Harbor
LaRue Spiker, Southwest Harbor
Jonathan Thomas, Gouldsboro
Arthur Thompson, Sorrento

Abbie Page, State Planning Office
Michael McMillen, State Planning Office
Robert Cossette, HCRPC
William Van Twisk, HCRPC

The meeting was opened by moderator Robert Cossette at 7:38 pm, who introduced the SPO representatives present.

The agenda and rules for the review of the proposals for CZMAC Organizational Structure were adopted essentially as presented.

The next item was the election of a moderator for the meeting. James Russell nominated Arthur Thompson. Since there were no other nominations, nominations ceased and Mr. Thompson was elected.

The proposed organization structures, as submitted by the Subcommittee on Organization, were discussed. James Sargent presented the recommendation for LaRue Spiker and himself. The proposal stated the purposes of the CZMAC, recommended that a steering committee be formed, and set their duties. Mr. Sargent mentioned that it was not specified that the chairman be a HCRPC Commissioner because some may want to serve on the steering committee without being chairman. He felt that the CZMAC should take its direction from the Federal Act.

Ms. Page commented that any proposed structure should address the idea of membership more fully to avoid stacked meetings. She also presented the SPO position that locally elected officials must be involved, and suggested that the CZMAC spell out a mechanism to involve them.

Mr. Russell presented his report, which was a modification of the Spiker/Sargent recommendation. He mentioned that the strengths of either report were: a clear statement of purpose and duties, the creation of a steering committee, provision for selecting a chairman, provision for reporting to and dealing with the HCRPC, the SPO, and public and private groups, and short, flexible 6 month terms of office.

In the discussion, Mr. Cossette reminded the committee members that any organizational structure that did not provide for a chairman to be a HCRPC Commissioner would have to be approved by the HCRPC. Ms. Spiker mentioned the possibility that the CZMAC does not have to be affiliated with the HCRPC.

Mr. Russell suggested a balance of public involvement and RPC control. Ms. Spiker suggested that the CZMAC should be an extension of the RPC to the public.

Mr. Thompson asked how the CZM effort tied into the HCRPC and the towns and suggested that the relationship with elected officials and citizens be more clearly spelled out. Mr. Sargent mentioned that the first task of the CZMAC should be to point out to the public that they can have an impact and generate grassroots interest.

Mr. Holstein thought the first obligation should be to the general public, and that town officials should be personally contacted. Several members felt that local contact should be through the HCRPC and its Commissioners.

Mr. Russell suggested that a balance of power be achieved between the RPC as sponsor of the CZMAC, the SPO as project coordinator, and the public. He added that it is difficult to spell out in words how input from elected officials will be derived, and thought that having a good structure would encourage public officials to come.

Ms. Page warned the members that the CZMAC may have a lesser role to play in the program. Several public participation methods are being explored by SPO, which include: through the full HCRPC; directly through municipal officers and the public, and through a state-level advisory committee. She strongly suggested that any citizens advisory structure must have municipally appointed designees.

Mr. Pederson suggested that that a broader purpose advisory committee could be formed to advise the HCRPC on all matters including CZM. He felt that the name "Coastal Zone Management" was creating opposition; Mr. Thomas agreed. Ms. Spiker responded that the present mission was to advise SPO and the HCRPC on the CZM Program, and if the towns don't want this, perhaps some further educational or background work is necessary.

Several amendments were offered to the recommended organization plans, and the plan as adopted follows this summary.

LaRue Spiker, James Sargent, Sarah Christy, and Fred Eustis were nominated to the first Steering Committee, and elected by acclamation.

Presentation of the Organization Plans to the HCRPC was discussed. There was a consensus that the Steering Committee first present the adopted plan to the HCRPC Executive Committee.

Mr. Cossette spoke on the CZM Program as it relates to the work of the HCRPC. He mentioned that HCRPC assistance in the CZM effort is proposed to be funded until August 31. He mentioned that he has recommended to the HCRPC Executive Committee that a survey be taken of Commissioners to determine local priorities for HCRPC efforts over the next year. It is unsure what effect a low priority rating or additional CZM funding will have on HCRPC participation in the program or on the CZMAC.

Responding to questions, Mr. Cossette stated that hoped that the survey would assist in determining the work program for the next year, in terms of which programs should receive funding or staff support. He emphasized that the staff has been instructed not to influence the Commissioner's decision.

Ms. Page reported on recent developments in the State Planning Office. She mentioned that Ronald Poltras has left his position as Supervisor of the Coastal Planning Group, and a five member committee of SPO staff will advise the new SPO Director, Allen Pease on the development of a management program. The Governor will delay the 306 management application for the Mid-Coast area for one year. She reported that the present SPO stance is to restructure the program to be responsive to public opinion and to the CZM Act. Mr. McMillan is working on Section 312 of the Act which provides funds to develop estuarine sanctuaries. Ms. Page has been designated Public Participation Director.

After August 31, the SPO will submit a supplemental application for funds for the Mid-Coast area; this tactic appears acceptable to the Office of CZM, (OCZM) but the Governor's position is unknown. It is not clear whether the RPC staff will be involved in this extended CZM funding. SPO and RPC representatives are meeting with OCZM personnel on June 27.

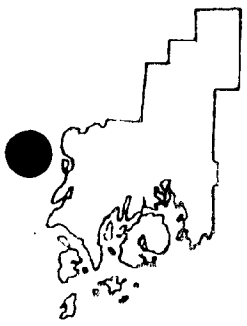
Ms. Page further stated that what is at stake is the Governor's view of RPC's; she emphasized that the Governor holds a dim view of RPC's, and that he has not had it proven to him that RPC's can be representative and can satisfy citizens needs. She recommended that the towns must voice their support for the RPC's; the Governor, at this point, is most willing to listen to municipal officers.

The CZMAC will meet again on July 16.

Schedule for Meetings to Review Resource Maps

produced by Coastal Planning Group

Towns Which Will Be Covered	Meeting Places, Dates, Times
Bucksport Orland Verona Penobscot Castine	- Bucksport Public Safety Building (Upstairs) July 9, 7 pm - Penobscot Town Hall, July 22, 7 pm
Deer Isle Stonington Isle Au Haut	- Stonington, date to be announced - Isle Au Haut, date to be announced
Brooksville Sedgwick Brooklin Blue Hill	- Sedgwick Town House, July 25, 7:30 pm - Blue Hill, George Stevens Academy Cafeteria July 15, 7 pm
Surry Ellsworth Hancock Franklin T8SD	- Surry, date to be announced - Franklin, date to be announced
Sullivan Sorrento Gouldsboro Winter Harbor T7SD T9SD T10SD	- Sullivan Recreation Center, July 21, 7:30pm - Winter Harbor, Hammond Hall, July 31, 7:30 pm
Swans Island Long Island Plantation	- Swans Island Schoolhouse, July 23, 7:30 pm
Trenton Lamoine Bar Harbor Mt. Desert Southwest Harbor Tremont Cranberry Isles	- Lamoine Town Hall, July 10, 7:30 pm - Bar Harbor Town Office, Public Hearing Room July 8, 7:30 pm - Southwest Harbor, Pemetic School Gymnasium July 11, 7:30 pm - Islesford, Neighborhood House, July 17, 7:30 pm



HANCOCK COUNTY REGIONAL PLANNING COMMISSION

P. O. BOX 608

ELLSWORTH, MAINE 04605

TELEPHONE 207 667-5729

July 3, 1975

To: Municipal Officers, Planning Board Chairmen, Conservation Commission Chairmen, Coastal Zone Management Advisory Committee, HCRPC Commissioners

From: Bill Van Twisk, HCRPC Staff BVT

As you know, the State Planning Office has been involved over the past year in the development of a Coastal Zone Management Program. One of the first steps in the planning of this program was the preparation of maps of the resources of coastal communities. In many towns, these maps represent the first time so much information has been gathered about the towns and their resources.

I have scheduled a series of local meetings to present the maps, to give you an opportunity to review the material and to offer corrections where you believe the information is inaccurate or needs further checking. We have tried to keep the meetings smaller and close by, rather than holding several meetings for the entire region. You will note from the enclosed schedule that in most cases the maps for your town will be discussed on several dates, so everyone has two chances to review the information. I hope your townspeople are able to attend the closest meeting as a group.

Finally, we're going to miss some folks who should know about these meetings, so your help here would be appreciated; chairmen should notify their board members. We think fishermen, hunters, outdoorsmen and the like will be especially interested. A list of the maps to be presented is below, and a copy of the meeting schedule is attached. See you there!!

Map Types
Soils
Slopes
Land Cover
Historic Areas
Marine Resources
Recreational Facilities
Facilities and Activities
Fish and Wildlife Habitat

Areas of State Concern:
Flood plains
Productive forest areas
Important trails
Wetlands
Areas with erosion problems
Valuable agricultural areas
Significant Natural, Scientific,
Historic or Prehistoric Areas
Benches and dunes
Recreational beaches
Important fish, wildlife, and marine habitats
Valuable mineral resources
Potential Aqua culture sites
Scenic areas

July 15, 1975

Hancock County Regional Planning Commission
Coastal Zone Management Advisory Committee

To: Members of the CZMAC

From: Bill Van Twisk, HCRPC Staff

MEETING DATE CHANGED

The regular monthly meeting of the CZMAC will be postponed to Wednesday, July 30, 7:30 pm at a place to be announced.

CZM UPDATE

What is happening in Maine's CZM Program?

As you will note from the enclosed minutes of the last CZMAC meeting, the CZM program is truly "in a state of flux." The State Planning Office is in the midst of conducting the 305 Program for the Southern Maine and Washington County coastal areas, while at the same time attempting to determine how the program for the mid-coastal regions should be restructured. Perhaps the biggest problem is in designing a 306 Program which will be responsive to the needs of local governments. This implies that at some point the program must take a consensus of the towns problems, needs and priorities and attempt to address those problems. All this surely points to some sort of direct contact or involvement with elected municipal officials.

The present feeling of the Governor is to delay the 306 Application for the mid-coast regions for one year (until March 1, 1976). At this time the 305 Program should be completed for the remainder of the coast, and SPO can submit a 306 Application for the coast as a whole.

Perhaps the major question is what happens in the mid-coast regions after August 31, when 305 funds are exhausted. SPO intends to apply for supplemental 305 funding, but it is unclear how the RPC's will be involved. OCZM has indicated that this supplementary 305 funding will probably be available.

A first effort of the CZMAC or HCRPC could be to attempt to correct the Governor's present misconceptions about regional planning (see Minutes).

I hope everyone is able to attend the SPO natural resource map review sessions which are scheduled for your area. Mark your calendars!

State of Maine
Executive Department
State Planning Office
184 State Street, Augusta, 04333
TEL. (207) 289-3261

JAMES B. LONGLEY
GOVERNOR

ALLEN G. PEASE
STATE PLANNING DIRECTOR

July 17, 1975

Robert Cossette
Hancock County Regional Planning Commission
69 Main Street, P.O. Box 608
Ellsworth, Maine 04605

Dear Bob:

I feel compelled to respond to some of the items recorded in the minutes of the June 18 CZMAC meeting. While I feel you are certainly free to record what you heard me say, I would like the opportunity to present what I think I said on two points:

Point 1: (last paragraph on page 3 of minutes) I would not attempt to judge the Governor's attitude toward regional planning commissions, as I have had no direct communication with him on the subject. What I would like to emphasize is that I feel he has not had the opportunity to assess the potential which an RPC has to act as a municipally controlled, grass-roots, management and budget conscious voluntary association of Maine's towns. If, in fact, the RPC is truly serving a valid purpose in the interest of effective and responsive government, I am sure that Governor Longley will eventually get this message.

Point 2: (paragraph 3 "CZM update" section of July 15 memo, attached to the aforementioned "minutes") Perhaps the question of timing is not critically important, but I think the Governor's feelings toward "306" is more accurately reflected in the last half of his letter to Robert Knecht, a copy of which you have. I must stress that the entire CZM program, not just the mid-coast management program, is undergoing review and assessment. It would be premature to state that the 305 program will be completed by March 1, 1976.

I hope this clarifies rather than confuses.

Sincerely,

Abbie C. Page, Resource Planner
State Planning Office

ACP,s
Encl.

AUG 26 1975

HANCOCK COUNTY REGIONAL PLANNING COMMISSION

P. O. BOX 608

ELLSWORTH, MAINE 04605

TELEPHONE 207 667-5729

August 20, 1975

Ms. Abbie Page
Public Participation Coordinator
State Planning Office
184 State Street
Augusta, Maine 04330

Dear Abbie:

After a good deal of hard thinking and soul searching, I have proceeded to set down on paper my perceptions about the overall CZM effort. I've enclosed a copy, which was delivered as a report to the HCRPC at their August 11 meeting by Bob Cossette, in my absence. While I'm sure this is old news and that Mike has filled you in on the juicy details, let me also notify you that following the presentation of the report, Bob recommended to the Commission that no additional contractual arrangements be entered into in regard to the CZM program. Let me also set the record straight and say that Bob's recommendation was his personal one, based on his personal perceptions of the program. Any action on that recommendation was tabled for one month pending further discussions with the Executive Committee.

I found after all my public meetings and personal deliberations that it was difficult to say anything specific about problems with the program. At each map review meeting, I got the impression that the trouble with things was not with technical methodology or process, but with something more fundamental. I believe that the majority of the specific criticizms (too much money spent, maps innacurate, foot in the door, etc.) result from a more basic misunderstanding, or lack of perception of "why statewide coastal planning". It's difficult to distinguish how much of this is "why planning" and how much is "why not local planning instead", but this fundamental deficiency remains.

Its amazing how much people will let get by when they believe in the purposes of what's being done. That is, depending the degree of underlying support for what's being attempted, innacuracies on resource maps become anything from "the postoffice is in the wrong place. I'll bet all those other maps are wrong too", to "nothing's perfect". Which says that specific deficiencies have a way of being overlooked when the public favors the concept of what the State is doing. Process becomes insignificant. We have two small towns here that adopted zoning ordinances in 1970. Both of these ordinances are the most minimal, incomplete, loopholey things you could imagine. But you should hear the town officials brag about their ordinances. "We did it before State Shoreland Zoning, and ours are much more strict that state guidelines". By popular demand, man controls his own destiny - the document's real quality is unimportant.

Based upon past results here in Hancock County, I look for the following strengths in any CZM program which follows:

1.) a decisive ruling as to who must be involved in the program. I suggest that involvement of the public at large be de-emphasized and that contacts with planning boards be strengthened. I feel that you have to assume that planning boards represent their towns.

2.) a clear presentation of the state's interest in coastal planning, supplemented by examples of issues which are and are not of state interest. This may require some hard thinking on your part, but never the less our people here need:
   a) some education regarding the problems and urgencies facing the Maine Coast; even those strongly opposed to CZM loved Lynn Franklin's slide show. More!
   b) a good case made in support of state vs. local solution of today's and tomorrow's issues
   c) a clear distinction between state concern and local concern, and a committment by SPO that the state program will stay out of purely local issues.
   d) an uncomplicated description of the two fold nature of the program (state planning and management (oil, nukes, administration of land use laws, etc.) vs. local assistance in planning, zoning, enforcement).

3.) an uncomplicated CZM administration within SPO unlike the floating responsibilities of the past. It's hard to keep up when you folks are changing hats so fast.

In sum, I believe that you may have to start small, by developing local contacts and committments, and by exploring issues as local perceived needs arise. This is a tremendous undertaking. After holding several dozen public meetings relative to CZM, I think now I could help you to figure out what needs to be said and asked, but I'm still at an impasse on when and where to say it.- regional meetings? local meetings? questionnaires? these things need to be worked out.

I've mentioned only some of the changes which must be instituted. I hope your CZM committee is able to address them all. Should you wish to discuss these matters further, I would be happy to arrange a meeting at our mutual convenience.

Yours truly,

William Van Twisk
Community Planning Assistant

WVT:rb

Staff Report and Recommendations

Coastal Zone Management Program

AUG - 6 1975

by William Van Twisk, Community Planning Assistant

August 11, 1975

The following report is an attempt to present my perceptions of the public opinion as regards the Maine CZM Program, based upon public meetings held to review CZM natural resource maps, meetings of the CZMAC, and other public meetings, and also to offer recommendations based on the HCRPC's 10 month involvement with the CZM Program.

In the period from July 8 - July 31, 12 public meetings were held in various locations for presentation of maps of physical resources of the coastal towns, prepared through the Maine CZM Program. These sessions provided an opportunity for a brief explanation of the CZM Program, the mapping process, and for a cursory review of the accuracy of the maps. Participants were encouraged to specify information of the maps which they believed innacurate or in need of further study. While the primary purpose of the meetings was to solicit these corrections, the meetings provided a valuable opportunity to test the reactions of local officials and others to the overall program.

The meetings were characterized by low attendance averaging about 15 despite extensive coverage in the press and HCRPC media. General reactions to the program ranged from complete sympathy to outright hostility. Those in support of the program seemed so not because of knowledge of the specifics of the program but because of a general feeling, or gut reaction that planning is needed for the Maine coast, or that the coast needs protection. Generally, those opposed to the program saw it either as greater State control over land use or a foot in the door for such aims.

Many corrections were suggested by those in attendance (even by those opposed to the program or undecided) which led to further questions regarding the accuracy of the information. That is, the errors that were located (wetlands left out, schools and other facilities in the wrong place, flood plains on high ground) led some to wonder about the information which could not be reviewed by laymen (slopes, data from aerial photos, soils, etc.) Had this information been collected by some bureaucrat sitting at his desk in Augusta who had never been to Hancock County?

In part, the meetings were a reflection of the deficiencies in the public participation process which accompanied the program. Many planning board members felt that the mapwork was something within their purview and that they should have been directly involved beforehand. They were placed in the position of having to accept a great deal of information at face value as being valuable and necessary; this was aggravated by the inability to say just how the information was to be used in the program. Lacking this information, it was natural to assume that the purposes of state identification of wetlands, wildlife habitats, recreational facilities, etc. were to establish further state controls or state zoning of these areas. Maps of that scale can only be used as guidelines - but guidelines for who or what? Since the administrative phase of the program was not approved, and a replacement program is yet to be designed, no one is in a place to say how the resource mapping is to be used.

Several participants felt as if the program was an affront to their local planning capability. "The State thinks we can't plan our own lives." This points out the general lack of understanding of why the State has any interest at all in specific resources located in their town; the rationale for why certain areas were "areas of state concern", was not justified. The distinction

between state and local planning was not made clear.

Another concern was program costs. Several participants wished to know the amounts spent for the overall program and the mapping. Those opposed seemed influenced by past experiences of wasteful state and federal spending. Several suggested that more dollars should have been spent at the local level for funding local groups to do similar tasks (mapping, etc.). These felt that the funds could be stretched further with volunteer assistance.

Another background influence was the state of the economy. While the purposes of CZM are to identify resources which may be developed (thereby improvidng economic conditions) as well as resources which may be protected, economic development was not stressed in the program. Thus the impression (and a valid one) was that tendencies towards more environmental protection would continue to stifle development of additional employment opportunities.

Recommendations For An Improved Program

Improvement of Maine's CZM Program will involve radical changes from the course followed in the past year.

Major additions should involve substantial efforts to achieve a working relationship with planning boards, municipal officers and the public (in that order) in meeting the State's responsibilities for resource planning. Planning boards have been given responsibilities for planning matters in their towns, and any regional or state program which omits them does serious injustice to the overall effort.

The local and state planning jurisdictions must be more clearly defined. Any state planning program which seeks to improve the administration of state land use laws, or which may recommend additional laws should be strictly

limited to those activities that are of statewide interest or concern. These activities should be defined and justified in a manner easily understood by the layman. At the same time, efforts should be made to improve the local planning capabilities, possibly through a system of direct local grants for plans and projects consistent with the goals of CZM. Such a small grants program would serve as an expression of the State's faith in local planning; it would allow flexibility, stimulate local interest, and help span the gaps that exist on the local level.

This juncture in state planning and land use control is a critical one - the state may continue to enact legislation which does not reflect established state policy, but it is simply a reaction to the towns which are "doing nothing" (such as Shoreland Zoning, the Subdivision statute, Wetlands Law), or it can make a concerted effort to inform townspeople of the issues and help them to deal with their problems on a local level. My guess is that most of the decisions which affect townspeoples lives can be decided on the local level. And while the level of local planning activity is very low, it represents a dramatic increase over that of 10 years ago.

Another point is that the program must move along at a slower pace. This is difficult sometimes - changes are taking place faster than we are willing to accept them. At one point it appeared that if the Federal Government's plan for oil leasing in the George's Bank went ahead according to schedule, we could have oil terminals, refineries, and new cities in Southern Maine almost overnight. This is a statewide issue which must be acted upon swiftly. However, other portions of the program which directly affect the towns cannot be hurried.

Judging by the opinions of those that participated in the meetings, each SPO contact with any local group or the public must explain in simple terms why statewide coastal planning is valid, what issues CZM is and is not concerned with, and why SPO has a legitimate interest in these issues. The program started out on the wrong foot from the beginning by assuming that the necessity for statewide coastal planning was understood by everyone. Since the program began on this unresponsive note, things could only get worse; the public was left behind - the plan was not conceived with broad-based local support so necessary in such a program.

Any new program must not be needlessly complicated by theories on what could be done under the CZM program. Rather a dialogue must be established, either between SPO and the HCRPC or directly between SPO and the towns to determine just two things: what are the major planning and management needs in the towns and can they be met through Maine's CZM Program?

An approved CZM program can be a tremendous asset to the HCRPC by meeting our HUD land use planning requirements for 28 of the region's 35 towns. On the other hand, a CZM program which is poorly understood, unresponsive to our towns' needs or improperly administered places the HCRPC in a position of "guilt by association" and has a negative impact on public views on planning and planners.

The problems with CZM are basic rather than specific. They revolve around poor understanding, poor communication and poor education. Until regional and local planners can consider SPO as a cooperator, rather than an adversary, the program should not proceed.

General Comments from Map Review Meetings

"I strongly believe that the data shown on these various maps is not derived scientifically. I get the impression that people sitting at desks in Augusta have generated the information without benefit of on-site investigations or consultation with local officials - i.e. planning boards, selectmen, fishermen, hunters, etc. The only way such maps can be accurately critiqued is by submitting them to the individual planning boards where concerned and knowledgeable citizens can spend the time to give each map a conscientious review. To give specific examples, the flood plain map for Brooksville shows potential flooding areas which are well above MSL; these areas have never been flooded. Similar discrepancies can be noted for each map."

(1-1, 3-3: Sedgwick) - (Brooksville PB Co-Chm.)

Maps should be given to Planning Board for their review.

- (Brooksville PB Member)

(1-1, 3-3: Sedgwick)

Why not make rough maps in quantity for thorough public review?

(1-1, 3-3: Sedgwick) - (Brooksville resident)

"The maps do not reflect actual conditions and should be more specific. Also, will they eventually be on file in other governmental agencies which could impose their will upon these communities?"

(1-1, 3-3: Sedgwick) - (Brooksville resident)

"In Bar Harbor - especially interested in socioeconomic data"

(4-1: Bar Harbor) - (Bar Harbor PB Member)

"We feel that Maine natives have protected their land in past years and should be allowed to do so in the future. Acadia National Park should not expand further as they seem to have difficulties in supervising present park area."

(3-1: Swans Island) - (resident)

The reasons for identifying wetlands should be justified. Most people don't understand the biological basis for wetlands protection.

(4-3: Winter Harbor) - (Gouldsboro resident)

"State has intruded enough into local planning jurisdiction with sub-division, shorelands zoning, etc. Marine Resources Comm. can handle coastal resources. Don't gather information for further legislation at the State level that the PEOPLE in the communities do NOT want.

(1-2, 1-3: Penobscot) - (Castine PB Chm.)

"Leave the towns and their resources along. We have had enough. We are capable of planning our lives and don't want people from Augusta, Portland coming up and using our facilities without the responsibility of paying taxes. We had a State man in the other day looking for public access areas to our waters. When we said it was all private and outsiders (including ourselves) use a boatyard facilities, he was alarmed. We are already paying other peoples education, supporting the State (MMA) in Solid waste, clean up, snowplowing, education, sewerage, recreation; why do we have to carry the rest of the country?

(1-2, 1-3: Penobscot) - "Selectmen of Castine"

"For Deer Isle-Stonington - Isle Au Haut area the marine environment/resources are the source of at least 75% of economy so inventory efforts should be heavily concentrated in these areas, because these areas must be adequately inventoried and protected. This is a Major project."

(3-2: Stonington)

E M C R P C

JUNE 1, 1975 - AUGUST 31, 1975

During this time, meetings were held to review the CZM maps. Meetings were held in Isleboro, Vinalhaven, Northhaven, Rockport, Rockland, Thomaston, Belfast, and South Thomaston.

WASHINGTON COUNTY RPC

JUNE 1, 1975 - AUGUST 31, 1975

One advisory committee meeting was held during this period. Notes, attendance sheet, and background material are attached, also a letter sent to the participants. It was decided to hold off on future meetings until the status of the CZM program settled down.

COMMENTS - W C R P C CZMAC - FIRST MEETING JUNE 4, 1975

1. Citizens don't want to "comment" and "criticize". They want real input. Problem is to get it to come from bottom up, rather than top down.

2. Federal seems to be taking over State rights, and State doing same to local.

3. "Bureaucratise" should be translated into English, then we could participate. Includes CZM Act and guidelines.

4. We also need to know where we can go for the data we need - we don't need to have the decisions made for us.

5. Suitability mapping - what use is it? Private developers will be doing tests anyway. Tax maps are more important right now.

6. State level planning should be concerned with upgrading personal standard of living in the county.

7. Practical aquaculture possibilities - maybe should reopen granite quarries and when they are spent, use for fresh water aquaculture.

8. Our advantages are wood and water - capitalize on these.

9. Governor should base decision on whether to phase out CZM on the federal "strings" in the regs and on the intent of the act.

10. Bureaucratic decision makers should be honest, do research and not make decisions based on political expediency. Legislators don't inform public on bills. Don't read them either.

11. Bureaucracy will continue indefinitely and citizen's job is to learn to control it.

12. Federal funny money is behind the Washington County housing boom. Will bust unless jobs made available.

Comments - WCRPC CAMAC — 1st meeting 6/4/75

1. Citizens don't want to "comment" and "critique" - they want real input. Problem is to get it to come from bottom up, rather than top down.

2. Fed seems to be taking over State rights and State doing same to Local.

3. Bureaucratese should be translated into English - then we could participate. Jurisdictional limitations and guidelines

4. We also need to know where we can go for the data we need — we don't need to have the decisions made for us.

5. Suitability mapping - what use is it? Private developers will be doing tests anyway. Taxmaps are more important right now.

6. State local planning should be concerned with upgrading personnel standards existing in the county.

7. Practical agriculture possibilities - maybe shared research with private owners

and when they are spent, use for fresh water aquaculture.

8. Our advantages are wood & water — capitalize on these

9. Governor should base decision on ~~2015~~ whether to phase out CZM on the federal "strings" in the regs and on the intent of the act —

10. Bureaucratic decision makers should be honest, do research and not make decisions based on political expediency. Legislators don't inform public on bills. Don't read them either

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12. Federal funny money is behind the Wash Co. housing boom. Will bust unless jobs made available.

PARTICIPANTS AT FIRST WASHINGTON COUNTY
R.P.C. CZM ADVISORY COMMITTEE MEETING

4 June 1975

Donald Bushey	Machias
Colson Robbin	Cherryfield
Mr. & Mrs. Ralph J. Smith	Steuben
Charles Lockabaugh	Lubec
Ivan M. Hanscom	Marshfield
M. Kelly Lombardi	Roque Bluffs
Everett L. Baxter	Eastport
Harry Fish	Jonesport
Bo Yerxa	RFD East Machias
Ray Beal	Jonesport
Linda Rottman	Machiasport
Bob Crane	Machias
Bob Guptill	Marshfield
V. Drozdoff	Cooper
Justin Day	Cooper
Louise Tier	Machias
Bruce Roberg	Machiasport
Jeff [illegible]es	Eastport

To: Members of the Coastal Zone Management "Advisory Committee"

From: Bob Crane, Washington County Regional Planning Commission

The first meeting of the Advisory Committee was held just one month ago, on June 4, in Machias. Nineteen county-residents - about one-half from the immediate Machias area - attended. We listened to Mrs. Abbie Page and Mike McMillen describe their experience, as employees of the State Planning Office, with the CZM program in the mid-coast region.

Those attending indicated an interest in a wide range of topics... including housing, jobs, energy-sources development, fisheries, etc.

The meeting was concluded without formalizing a procedure or schedule for future meetings. This was because Abbie and Mike felt that the present uncertainty about CZM in Augusta would eventually be resolved, and that this advisory committee would necessarily be affected.

About a second meeting: I'm sure you will agree that a second meeting is in order fairly soon. However some of our earlier plans have changed:

Governor Longley has confirmed that he will not sign the mid-coast management program; instead, he has recommended another year of planning. This does not affect us here in Washington County, except that we will not have the benefit of an approved management program - for comparison purposes - as we are planning our own.

Because our advisory committee meetings still need some structuring, at this early stage, I will try to develop an outline of topics for a meeting sometime late this month.

You are welcome to contact me, in whatever way most convenient for you, with your suggestions.

TO: Members of the Citizens' Advisory Committee

FROM: Bob Crane, Washington County Regional Planning Commission

In order to provide you with some background information for the first Citizens' Advisory Committee meeting, I have listed here the required elements of a management program as defined by Public Law 92-583 (Coastal Zone Management Act of 1972). In other words, by accepting a federal planning grant under this law, the State of Maine has pledged itself to develop a management program which contains the following items:

(1) an identification of the boundaries of the coastal zone subject to the management program.

> Governor Curtis designated the strip of municipalities with salt water frontage as the planning area. Through Shoreland Zoning, we already have a management zone of 250 feet along the water. It remains to be seen whether this will satisfy the federal requirements. Of course, the coastal zone includes the ocean and ocean floor out to the territorial limit.

(2) a definition of what shall constitute permissible land and water uses within the coastal zone which have a direct and significant impact on the coastal waters.

> This is supposed to do, however inaptly, with Shoreland Zoning. In establishing permissible uses, "there must be adequate consideration of the national interest involved in the siting of facilities that are other than local in nature." Obviously this could have extensive repercussions. I would expect the State Planning Office to take the lead in dealing with this aspect of the Act, and it will be the Advisory Committee's job to comment and criticize.

(3) an inventory and designation of areas of particular concern within the coastal zone.

> The Critical Areas Advisory Board (of which Dor Bushey is a member) and at least one conservation group is in the process of doing this.

(4) an identification of the means by which the State proposes to exert control over the land and water uses, referred to in #2 (above), including relevant constitutional provisions, legislative enactments,

regulations, and judicial decisions.

a large part of the Advisory Committee's job will be to review existing legislation and regulations for effectiveness, and to study proposed legislation (if any) at all levels of government. The Act requires that in developing a management structure "consideration be given to ecological, cultural, historical, and aesthetic values, as well as to the needs of economic development" (my underline).

(5) broad guidelines on priority of uses in particular areas, including specifically those uses of lowest priority.

this could be an extremely difficult task.

A "scientific" method of establishing priorities would be to identify every conceivable use of the coastal zone, identify uses which can co-exist with other uses and those which cannot co-exist, ascribe a dollar-value to each use, and choose the most lucrative uses (or combinations).

Unfortunately, many factors besides money determine priorities.

It may be more important for us to develop the capability of assigning priorities at some future time, rather than prioritizing now unrealistically.

(6) a description of the organizational structure proposed to implement the management program, including the responsibilities and interrelationships of local, areawide, state, regional, and interstate agencies in the management process.

all of this boils down to "who is going to be responsible for what."

I hope that you plan to attend the first Citizens' Advisory Committee meeting on June 4. I would expect the representatives from the State Planning Office to give us an interpretation of these five elements from a State perspective. Remember, the State Planning Office has been working on the CZM program for well over a year now. They have already drafted a complete management plan for parts of Hancock, Waldo, Lincoln, Knox, and Sagadahoc Counties---with the help of a Citizens' Advisory Committee, of course!

5. CRITICAL AREAS PROGRAM

Preliminary decisions were made, by the Critical Areas Advisory Board, during this period, to register five tern nesting islands:

Foster Island (Machiasport)
Petit Manan Island (Steuben)
Metinic Island (southern portion)
Upper Sugarloaf Island (Phippsburg)
Beech Island (Biddeford)

In addition, three planning reports were issued and are attached.

Alcids Nesting on the Maine Coast

A Report Prepared for the Maine Critical Areas Program

by Joel Cowger

DRAFT

FORWARD

The following report on alcids is one of a series of reports being prepared for Maine's Critical Areas Program. This program was established by an act of Legislature in 1974, which directed the State Planning Office to develop an official Register of Critical Areas and to encourage and coordinate the conservation of such areas as part of its overall responsibility for comprehensive statewide planning and coordination of planning activities. The act identifies Critical Areas as natural features of statewide importance because of their unusual natural, scenic, scientific, or historical significance.

The Act also created the Critical Areas Advisory Board to advise and assist the State Planning Office in the establishment of the Register and the conservation of critical areas. The program established by the Act is not regulatory, with the minor exception that notification of proposed alterations of critical areas is required of the landowners thereof. The program is primarily one of identifying critical areas and providing advice to and coordinating the voluntary activities of landowners, state and local government organizations, conservation groups and others to the end of encouraging the conservation of critical areas. The Critical Areas Program further provides a specific focus for the evaluation and coordination of programs relating to critical areas in Maine. The program also serves as a source of information on critical areas and their management.

The purpose of these reports is to present results of thorough investigations of subject areas chosen for consideration in the Critical Areas Program. The reports are an intermediate phase in a systematic registration process which starts with the identification of subjects for consideration and concludes with the analysis of each potential critical area individually and, if appropriate, inclusion of areas on the Register.

In addition to the specific task they are intended to fulfill in the registration process, it is my hope that these reports will be useful in a more general sense as a source of information on the various topics they cover. For more information on alcids or other aspects of the Critical Areas Program, feel free to contact me or other members of the staff at the State Planning Office.

R. Alec Giffen
Resource Planner

ABSTRACT

Three species of alcids - the razorbill Alca torda, the common puffin Fratercula arctica, and the black guillemot Cepphus grylle - reach the southern limit of their western Atlantic breeding range on the Maine coast. The presence of these species lends variety and excitement to the birdlife along the Maine coast.

The history and current status of alcids nesting in Maine is reviewed. Razorbills and puffins are found on only two islands - Matinicus Rock and Machias Seal Island, the latter claimed by both the United States and Canada. Guillemots nest in substantial numbers along the coast.

The important nesting locations of razorbills, puffins, and guillemots are proposed for inclusion on the Critical Areas Register, and management guidelines are proposed.

INTRODUCTION

Maine supports an extensive seabird population because of the abundance of relatively inaccessible rocky coastal islands which are ideal nesting grounds for many seabird species. No other area in the eastern United States has a comparable number of seabird nesting colonies. Most of the offshore nesting islands are low-lying granite outcrops or drowned mountaintops. Gulls, cormorants, and eiders nest in substantial numbers offshore, while others such as terns, razorbills, puffins, and petrels are less common and more sensitive to environmental changes. Tyler (1975) reviewed the status of the tern populations along the coast. The present paper reviews the status of the razorbills, puffins, and guillemots in Maine.

General Information on Alcids

Razorbills, puffins, and guillemots are members of the family Alcidae, which also includes auklets, dovekies, murres, and murrelets. Alcids are pelagic birds, and breed only in the arctic and north temperate oceans. They are considered to be the ecological "equivalents" of the penguins of the south temperate and antarctic oceans. Alcids are characterized by their black and white plumage, short tails and wings, rapid wingbeats, and use of wings as primary swimming organs. They feed almost entirely on fish and marine invertebrates, particularly crustaceans. (Thompson, 1964).

There are 21 species of alcids, only five of which breed in the North Atlantic below the Arctic Ocean. These five are the thick-billed murre Uria lomvia, the common murre Uria aalge, the black guillemot Cepphus grylle, the razorbill Alca torda, and the common puffin Fratercula arctica. The murres of the west Atlantic nest as far south as the Maritime Provinces of Canada, while the razorbill, puffin, and guillemot reach the southern limit of their west Atlantic breeding range in Maine. The guillemot nests in both the Atlantic and Pacific north temperate seas as well as the Arctic, whereas the razorbill and puffin are two species out of a small total of 12 seabirds species which breed only in the North Atlantic and adjacent Arctic regions (Fisher and Lockley, 1954).

The presence of alcids in Maine is due to the cold waters of the Labrador Current and the effects of the huge tides in the Bay of Fundy region, which result in upwelling of colder water, and creates an abnormally cool climate for the latitude (Day, 1950).

The Razorbill, Alca torda

Description, Life History, and Distribution

The razorbill (Fig. 1) is a large alcid, with a length of about 35cm (14 in.). It can be identified from other alcids by its thick bill, uptilted tail when swimming, and arched back when flying. The breeding range of the razorbill extends from the northern arctic areas of Scandinavia down through the British Isles, on the isles of the mid-North Atlantic, including Iceland, and from Greenland down to Labrador, Newfoundland, and the Maritime Provinces of Canada to Maine. Bedard (1969) estimated the total west Atlantic population of razorbills to be approximately 47,000 birds.

After spending the winter in the open sea, as do all other auks, razorbills arrive at their southernmost breeding grounds near the end of February, and pairing may take place at the beginning of April, or a month later in northern areas (Fisher and Lockley, 1954). Nests are located in protected shadows and under boulders, or sometimes on ledges directly exposed to the elements. Incubation of the single egg requires about 34 days and fledging requires an additional 15 days.

Razorbills in Maine

The Maine razorbill population is restricted to Matinicus Rock, 15 km southeast of Rockland, which is the southernmost breeding location of the species. A few pair have nested on the Rock since 1952. Buchheister (pers. comm.) states that 10 pair of razorbills nested on the Rock in 1974 (Table I). Razorbills have been seen in previous years on several other Maine islands - Western Egg Rock in Muscongus Bay, Metinic Green and Little Green Islands (Norton, 1923), and Old Man Island in Machias Bay (Drury, 1973), but no permanent populations have been established. Machias Seal Island, claimed by both the United States and Canada, has a sizeable breeding population. 50 pair were observed on Machias Seal in 1971 by Russell and Thompson (Drury, 1973).

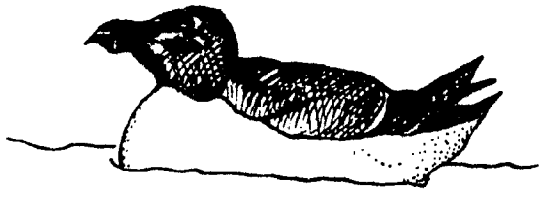

Fig. 1. The razorbill, Alca torda

Drury (1973) quotes reports by Townsend and Gross that 300-400 razorbills were nesting on the Murre Ledges south of Grand Manan Island in Canada during the 1920's and '30's, and reports that Lock (1971) found 50 pair on Hartford and Ciboux Islands off

Cape Breton Island, Nova Scotia. Drury considers the razorbill colonies on the northern shore of the Gulf of Maine to be a major part of the southern razorbill population. Razorbills nesting at Matinicus Rock and others prospecting along the Maine coast might well have come from parent stock on Machias Seal, the Murre Ledges, and possibly the Cape Breton Island colonies.

The Common Puffin, Fratercula arctica

Description, Life History, and Distribution

Puffins (Fig. 11) are smaller (27 cm or 11 in.) than razorbills and can be readily identified by their large bill, which in breeding season is brightly colored. There are three subspecies of common puffins - the large Fratercula arctica naumanni, found in northern Greenland, Spitsbergen, Novaya Zemlya, and Jan Mayen; the intermediate form, F. a. arctica of southern Greenland, Ideland, Bear Island, Norway, eastern Canada, and Maine; and the small southern F. a. grabae of the Faroe Islands, the British and Channel Islands, France and southern islands of Scandinavia (Lockley, 1962).

Other puffin species are the horned puffin Fratercula corniculata, found in the Bering Sea region, and the tufted puffin Lunda cirrhata, with a distribution from northern Alaska and Siberia south to California and Japan (Lockley, 1962).

Lockley (1962) estimates the total world population of common puffins to be a minimum of 15,000,000. Most of the population is centered in Iceland, the Faroe Islands, and the British Isles. The estimated population of Fratercula arctica arctica in North America is only 100,000.

Fig. 2. The common puffin, Fratercula arctica

From their wintering areas in the open sea, puffins return to their breeding grounds in March. The puffin is the only Atlantic auk which mates in the water - all others mate on land. It is also the only Atlantic auk which actively prepares a home, burrowing a tunnel perhaps a meter deep, using its bill and feet as digging tools. In a dense colony, the burrows may connect and form an extensive catacomb, yet each nesting pair will use only one entrance. Little nesting material is used, the one egg often lying directly on the bottom of the burrow. Egg-laying commences by the end of April, some four weeks before razorbills and guillemots begin laying. Incubation and fledging require about 90 days, an exceptionally long period, due to the fact that the egg and nestling are relatively protected from predators in the burrow, and the parents can therefore leave the nest for long periods during development.

Puffins in Maine

Norton (1923) states that puffins were abundant on Big Green Island (Matinicus group) and the Egg Rocks (Muscongus Bay) before 1860. A large breeding colony on Matinicus Seal Island persisted until 1897, when the birds were exterminated, probably the result of a visit by a milliner's agent (Norton, 1923). Allen and Norton (1931) found feathers at the entrance of a burrow on Seal Island in 1931.

The only breeding location of common puffins in Maine at present is on Matinicus Rock, which supported over a hundred birds through the 1950's and '60's. A gull control program on the Rock in 1971 resulted in an increase in the number of puffins, but with the control program discontinued because of pesticide restrictions in 1972, the puffin colony suffered, according to Drury (1973). Buchheister (pers. comm.), however, found that about 125 pairs of puffins nested in the Rock in 1975, the largest number that he has seen in several years of observation (Table I).

In July, 1974, 68 puffin chicks were transplanted from Newfoundland to Eastern Egg Rock in Muscongus Bay, a former puffin colony, with the intent of reestablishing a population (Kress, 1974). 93 additional chicks were transplanted in 1975. The ultimate success of the project will not be known for several years, as young puffins do not normally return to nest until their third year.

Machias Seal Island supported a sizeable puffin colony (about 1500 birds) in 1971 (Russell and Thompson, 1971, from Drury, 1973). No later population estimates are available. Drury (1973) notes that Lock (1971) found 50-70 pairs of puffins nesting on Hartford and Ciboux Islands off Cape Breton Island.

The Black Guillemot, Cepphus grylle

Description, Life History, and Distribution

The black guillemot (Fig. 3) is about the same size as the puffin, but can be distinguished from other auks by the large white wing-patch. The species has been divided into as many as 13 races, which together have a wide breeding range throughout the arctic, extending down to Japan and Korea in the western Pacific, to California in the eastern Pacific, to the British Isles and Denmark in Europe, and to Maine in the western Atlantic.

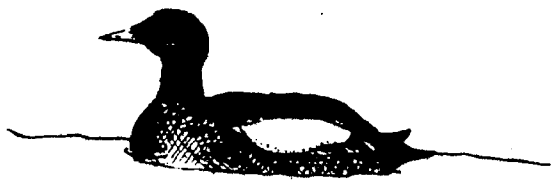

Fig. 3. The black guillemot, Cepphus grylle

Guillemots are less gregarious during the breeding season than other auks (Thompson, 1964). They lay two eggs, unlike razorbills and puffins, which lay only a single egg. However, only one of the guillemot chicks is normally reared (Armstrong, 1940, from Fisher and Lockley, 1954). Nesting takes place under rocks or boulders, or in crevices, where the young are semi-protected. Incubation and fledging requires a total of about 70 days (Fisher and Lockley, 1954).

Guillemots in Maine

The guillemot is no longer a rare bird on the Maine coast, as the population has increased dramatically during recent decades. Allen and Norton (1931) reported that in 1903 guillemots were found breeding on 14 islands, and totalled about 150 birds. Their survey of 1931 recorded 24 nesting islands with a total population of about 600 birds.

At present, at least 24 islands off the Maine coast have colonies exceeding 50 pairs of guillemots apiece (Drury, 1974). Table II lists the islands which have colonies of at least 100 pairs. The locations of these major islands, along with Matinicus Rock and Machias Seal Island, are shown in Fig. 4.

The southernmost breeding island of the species in the western Atlantic is Smuttynose Island, in the Isles of Shoals group on the New Hampshire border, where one or two pairs nested in 1969 and 1970 (Drury, 1973).

Factors Adversely Affecting Alcid Populations

The most important predators of seabirds are other seabirds. Although skuas, ravens, greater and lesser black-backed gulls, glaucous gulls, eagles, owls, and gyrfalcons are all important predators in their respective habitats, the herring gull Larus argentatus is undoubtedly the worst seabird enemy along the New England coast. It is a proficient egg-robber and consumes a considerable number of auk nestlings.

More importantly, the aggressive herring gulls deplete seabird breeding colonies by establishing and expanding their own colonies. The effect of expanding gull populations on tern colonies is well-documented (Gross, ~~1954~~ 1935; Tyler, 1975). Gulls on Matinicus Rock have had a serious effect on the populations of other seabirds there, including terns, auks, and petrels.

Man has either directly or indirectly has a great influence on a number of seabirds. The defenseless great auk Pinguinis impennis was driven to extinction by the wholesale slaughter to feed coastal or island dwellers, sailors, and explorers. Gannets, razorbills, guillemots, and puffins have long been an important source of food for such people as Eskimos and other North Atlantic islanders. The population of several species of terns was almost irreversibly depleted by plume hunters last century. An important puffin colony on Matinicus Seal Island was destroyed by milliners late last century (Norton, 1931). Seabird colonies on the Maine coast were in serious danger at the turn of the century because of unrestricted hunting and egg-gathering (Allen and Norton, 1931). Legislation in 1901 protecting non-game birds, and protection of several nesting islands immediately had an effect and many species experienced considerable increases in numbers.

Indirect effects of man's presence have been considerable. Rats, introduced inadvertently by man on many breeding islands have seriously depleted many seabird colonies, particularly those of burrowing species such as puffins and petrels. Norway rats are now present on a number of Maine offshore islands and have prevented successful nesting by terns and laughing gulls, as well as eliminating petrels (Buchheister, pers. comm.).

Although terns in particular have suffered the loss of many breeding areas on coastal beaches and marshes due to alterations by man, alcids are relatively unaffected by development pressures, as their nesting grounds are usually relatively inaccessible granitic offshore islands and ledges which are low, rocky and treeless, with only patches of vegetation. Exceptions do occur,however. Great Duck Island, east of Long Island, is the site of exceptionally large colonies of guillemots and petrels. Three years ago a homestead was established there, with two sheep, two cats, and two dogs, a pig, and a deer (Newsweek, 7/21/75). The effect of their animals on the nesting birds and on the nesting habitat may well be devastating.

One of the biggest dangers currently facing seabirds is oil pollution at sea. Waste oil emptied into the sea or accidental oil spills result in sticky slicks which severely affect swimming or diving birds. Insulating value of the plumage is reduced due to the loss of air spaces in the feathers, and the birds usually die. Oil slicks particularly affect the surface-swimming guillemots and razorbills (Fisher and Lockley, 1954; Mostert, 1974). Oiled birds collected on the British coast after the Torrey Canyon spill in 1967 included 6,355 guillemots, 1,384 razorbills, 42 puffins, 41 cormorants, 3 gannets, 18 great northern divers, 3 herring gulls, a skua, a black-necked grebe, and a black-backed gull (Fisher and Charlton, 1967). These authors point out that detergents used to clean up the spill were at least as destructive as the oil, producing caustic burns on the bird's bodies.

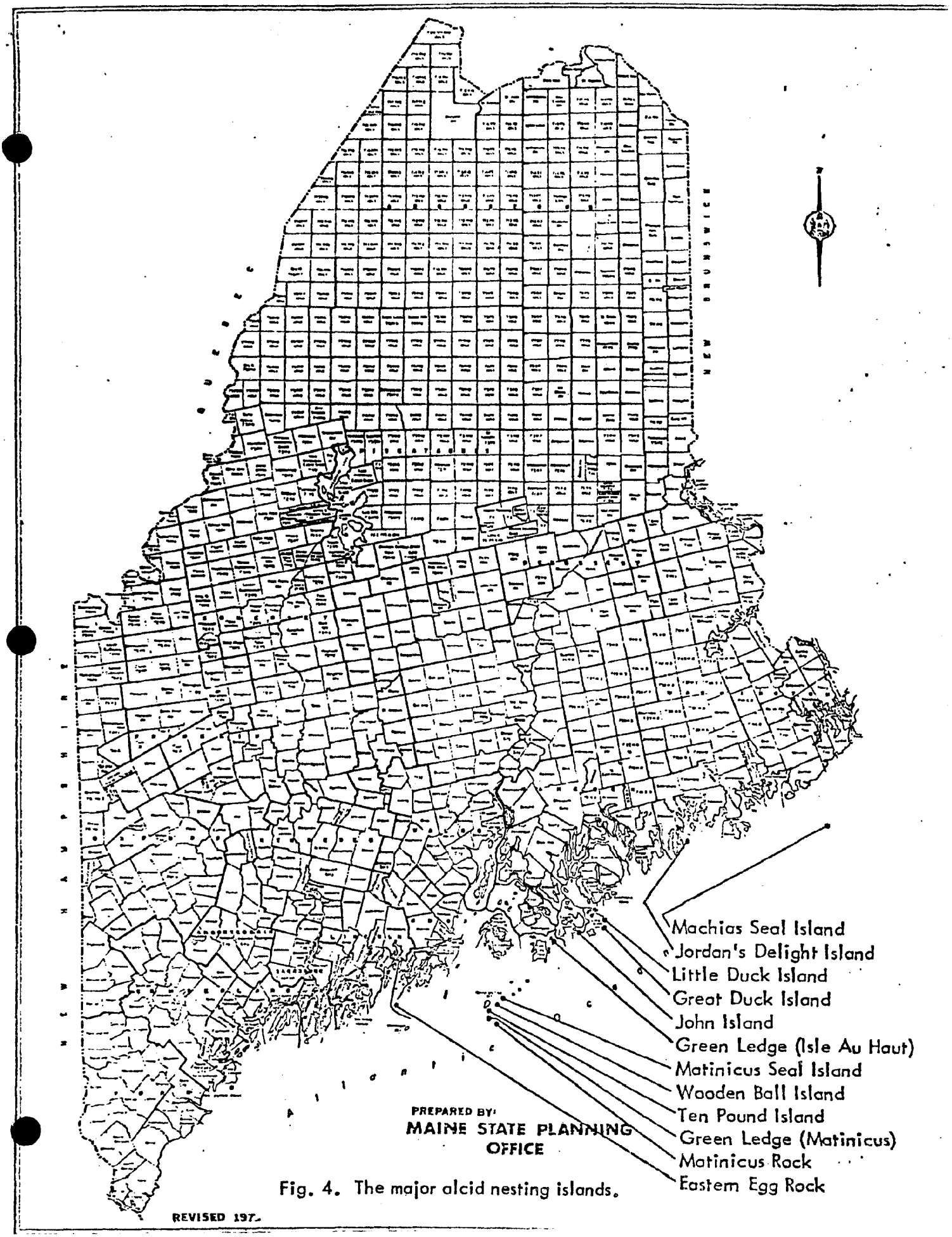

Fig. 4. The major alcid nesting islands.

General Analysis of the Suitability of Alcid Nesting Habitat

for Inclusion on the Register of Critical Areas

1. Conformance with definition contained in the Act.

The Act defines a critical area as meaning: "areas containing or potentially containing plant and animal life or geological features worthy of preservation in their natural condition, or other natural features of significant scenic, scientific or historical value." Nesting islands of alcids on the Maine coast are natural areas which should be preserved for the security of the species. These seabirds are a significant scenic resource and of scientific value in that they are living in Maine at the fringe of their ranges.

2. Considerations in registration

A. Values and qualities represented by the area (specifically including any unique or exemplary qualities of the site).

The presence of razorbills, puffins, and guillemots lends variety and excitement to the Maine Coast. A considerable number of people, both residents and summer visitors, take special trips to see the birds on their breeding grounds. The alcid colonies on the Maine coast are the most southerly colonies on the east coast of North America, and only one Leach's petrel colony exists south of Maine.

B. Probable effects of uncontrolled use (specifically in relation to its intrinsic fragility).

Alcids and petrels, like many other seabirds, are sensitive to environmental changes. Particularly since the colonies of razorbills and puffins are tenuous "footholds," uncontrolled use of their breeding grounds would probably destroy the colonies quickly. Human visitation, particularly during the breeding season, with the danger of serious predators, would have an adverse effect on the populations.

C. Present and probable future use (specifically present and future threats of destruction).

Nesting islands of alcids and petrels are usually unsuitable for development as they are low treeless islands well offshore and relatively inaccessible. It is conceivable that in the future, oil exploration and/or storage facilities may be proposed for an island with breeding populations of alcids or petrels.

The most immediate threat to the colonies is visitation and exploration by boating parties. Homesteading, such as on Great Duck Island, is another serious threat.

D. Level of significance

Nesting islands of alcids and petrels are of regional significance, as they are on the southern fringe of the species' summer range.

E. Probable effects of registration - positive and negative (specifically including the economic implications of inclusion of the area on the register).

Registration of valuable alcid and petrel nesting islands will give official recognition to their importance. This will encourage the monitoring of the populations and preservation of the nesting habitat.

The presence of alcids and petrels is an economic asset to the state. Mr. Eliot Winslow, captain of the Argo at Southport, estimates that he carries well over a thousand people each summer to view the seabirds off the coast, particularly at Matinicus Rock, and he says that interest in the birds is increasing every year (pers. comm.).

The negative effects of registration would be the prevention or restriction of human use or visitation, particularly during the breeding season.

F. Management Guidelines

All nesting islands of razorbills and puffins, and important nesting islands of guillemots should be maintained in their natural state to provide suitable nesting sites. Use of the islands by humans and domestic animals should be minimized, particularly during breeding season.

Colonies of alcids should be monitored to detect changes in abundance. Coastal islands should be examined periodically to check for expansion or constriction of the breeding ranges.

A limited gull control program should be considered to protect the small razorbill and puffin colonies on Matinicus Rock, where gulls endanger the populations.

If the puffin transplantation program at Eastern Egg Rock is successful, other transplants of puffins should be considered.

Introduction of mammals, such as cats, dogs, rats, sheep must not be allowed.

G. Owner's attitude

It is expected that the attitude of the owners, both public and private, of alcid and petrel nesting colonies will be favorable towards registration.

RECOMMENDATIONS

It is recommended that the following actions be initiated by the Critical Areas Program:

1. The islands with colonies of razorbills and puffins should be registered. These include Matinicus Rock and, if successfully claimed by the United States, Machias Seal Island. The islands with the largest colonies of black guillemots (> 100 pairs) should also be registered.

2. Nesting islands should be monitored to maintain records of population changes. Eastern Egg Rock in particular warrants monitoring to determine the success of the puffin transplant program. Monitoring could be carried out by personnel of the Department of Inland Fisheries and Game, the Department of Marine Resources, and the U.S. Department of Fisheries and Wildlife, as well as interested volunteers.

3. Agreements should be reached with the owners of nesting islands for the purpose of protecting the nesting areas. Acquisitions, easements, or cooperative agreements may be implemented.

4. A limited gull control program should be undertaken on Matinicus Rock, where gulls threaten the security of alcid colonies.

5. Periodic review of results of field investigations by the National Audubon Society or other workers should be undertaken, to keep abreast of alcid numbers and distributions. In particular, information collected by Dr. Howard Mendall on his seabird inventory (1976-1978) should be reviewed as it becomes available.

6. Owners of nesting islands should be informed of the danger of introduction of mammals to the islands.

TABLE I

Maine Islands with Breeding Populations of Common Puffins and Razorbills

Island Name	Coastal Island Registry Number	County	Township or Plantation	Coordinates	Size (hectares)	Species	Numbers (pairs)	Date	Source
Matinicus Rock	63-940	Knox	Matinicus	43-47-05 68-51-15	10	Puffins Razorbills	125 10	1975 1974	Buchheister (pers. comm.
Machias Seal	79-367	Claimed by United States and Canada		44-30-08 67-06-04	100	Puffins Razorbills	750 50	1971 1971	Russell and Thompson, 197 from Drury(197

TABLE II

Maine Islands with Large Breeding Populations (>100 pair) of Black Guillemots

and Name	Coastal Island Registry Number	County	Township or Plantation	Coordinates	Size (hectares	Number (pairs)	Source
tern Egg k	63-860	Knox	St. George	43-51-40 69-23-00	4	150	Drury (1974) Kress (pers. comm.), 1975
tinicus Rock	63-940	Knox	Matinicus	43-47-05 68-51-15	10	400-500	Buchheister (pers. comm.) 19
tinicus Seal	63-923	Knox	Matinicus	43-53-12 68-44-24	36	200	Drury (1974)
oden Ball	63-917	Knox	Matinicus	43-51-18 68-44-24	50	175	Drury (1974)
en Ledge	63-929	Knox	Matinicus	43-49-42 68-52-42	2	150	Drury (1974)
Pound	63-920	Knox	Matinicus	43-50-48 68-53-18	12	175	Drury (1974)
en Ledge	63-266	Knox	Isle au Haut	44-05-35 68-34-00	0.5	100	Drury (1974)
n Island	59-483	Hancock	Swan's Island	44-06-40 68-24-20	14	100	Drury (1974)
at Duck	59-440	Hancock	Long Island	44-09-30 68-15-00	88	850	Drury (1974)
le Duck	59-439	Hancock	Long Island	44-10-30 68-14-45	35	200	Drury (1974)
lan's Delight	79-922	Washington	Harrington	44-26-35 67-49-25	8	250	Drury (1974)

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APPENDIX I

Black Guillemot Nesting Islands

(Compiled by William Drury, 1965-1973, except where noted)

Island Name	County	Township	Coordinates		Number of Guillemots (in pairs)
Smuttynose Island	York	Kittery	42-58-10	70-36-15	2
Boon Island	York	Kittery	43-07-14	70-28-39	10
Duck Island	York	Kittery	43-00-30	70-36-30	1
Ram Island	Cumberland	Portland	43-38-15	70-11-25	6 (?)
Outer Green Island	Cumberland	Portland	43-39-00	70-07-30	2
White Bull Island	Cumberland	Harpswell	43-43-15	69-55-30	3
Heron Islands	Sagadahoc	Phippsburg	43-43-20	69-48-15	2
Seguin Island	Sagadahoc	Georgetown	43-42-30	69-45-20	6
Damariscove Island	Lincoln	Boothbay	43-46-00	69-35-30	2
North White Island	Lincoln	Boothbay	43-47-20	69-34-30	2
Pumpkin Island	Lincoln	Boothbay	43-45-15	69-35-00	2
Jones Garden Island	Lincoln	Bristol	43-55-48	69-23-20	3
Western Egg Rock	Lincoln	Bristol	43-52-45	69-25-00	12
Eastern Duck Rock	Lincoln	Monhegan	43-46-40	69-18-38	25
Franklin Island	Knox	Friendship	43-53-20	69-22-32	10
Eastern Egg Rock	Knox	St. George	43-51-40	69-23-00	150
Old Hump Ledge	Knox	St. George	43-52-45	69-21-22	9
Mosquito Island (Little Egg)	Knox	St. George	43-55-16	69-13-13	50
Shark Rock	Knox	St. George	43-50-45	69-21-20	6
Hay Ledge	Knox	St. George	43-54-32	69-14-02	20

APPENDIX I

Black Guillemot Nesting Islands

(Compiled by William Drury, 1965-1973, except where noted)

Island Name	County	Township	Coordinates		Number of Guillemot (in pairs)
Gunning Rocks	Knox	St. George	43-54-42	69-14-57	8
East Goose Rock	Knox	North Haven	44-08-08	68-49-50	4
Robinson Rock	Knox	North Haven	44-09-40	68-55-45	7
Mouse Island	Knox	North Haven	44-11-55	68-56-40	6
Spoon Ledge	Knox	North Haven	44-12-05	68-49-45	12
Dagger Island	Knox	North Haven	44-10-48	68-48-30	6
Downfall Island	Knox	North Haven	44-10-43	68-47-36	10
Tommy Island	Knox	So. Thomaston	44-01-10	69-06-45	4
Garden Island	Knox	So Thomaston	44-00-00	69-06-15	2
Oak Island	Knox	Muscle Ridge	44-00-50	69-04-39	3
Marblehead Island	Knox	Muscle Ridge	44-02-09	69-02-30	2
Fisherman's Island	Knox	Muscle Ridge	44-02-30	69-02-20	10
Little Two Bush Island	Knox	Muscle Ridge	43-57-50	69-04-45	5
Matinicus Seal Island	Knox	Matinicus	43-53-12	68-44-24	200
No Man's Land	Knox	Matinicus	43-53-06	68-52-13	80
Large Green Island	Knox	Matinicus	43-54-24	69-00-30	30
Pudding Island	Knox	Matinicus	43-50-30	68-52-54	50
Ten Pound Island	Knox	Matinicus	43-50-48	68-53-18	175
Matinicus Rock	Knox	Matinicus	43-47-05	68-51-15	400-500*
Wooden Ball Island	Knox	Matinicus	43-51-18	68-49-12	175

* Number estimated by Carl Buchheister, 1975

APPENDIX I

Black Guillemot Nesting Islands

(Compiled by William Drury, 1965-1973, except where noted)

Island Name	County	Township	Coordinates		Number of Guillemot (in pairs)
Metinic Green Island	Knox	Matinicus	43-51-36	69-08-00	30
Little Green Island	Knox	Matinicus	43-50-55	69-02-00	30
Green Ledge	Knox	Matinicus	43-49-42	68-52-42	150
Metinic Island	Knox	Matinicus	43-53-06	69-07-42	50
Hog Island	Knox	Matinicus	43-52-12	69-07-30	15
Green Ledge	Knox	Isle Au Haut	44-05-35	68-34-00	100
White Ledge	Knox	Isle Au Haut	44-05-10	68-33-48	10
Great Spoon Island	Knox	Isle Au Haut	44-02-37	68-33-30	50
Eastern Ear Island	Knox	Isle Au Haut	44-00-51	68-36-20	20
York Island	Knox	Isle Au Haut	44-03-53	68-35-20	6
Little Spoon Island	Knox	Isle Au Haut	44-02-21	68-34-20	30
Sparrow Island	Knox	Isle Au Haut	44-07-00	68-41-43	6
Southern Mark Island	Knox	Isle Au Haut	44-07-15	68-34-25	75
John Island	Hancock	Swan's Island	44-06-40	68-24-20	100
High Sheriff Island	Hancock	Swan's Island	44-07-50	68-28-02	4
John Island Dry Ledges	Hancock	Swan's Island	44-06-07	68-24-53	12
Black Island	Hancock	Swan's Island	44-20-00	68-27-40	10
Crow Island	Hancock	Swan's Island	44-11-15	68-26-15	25
Halibut Rocks	Hancock	Swan's Island	44-08-00	68-31-40	45
Three Bush Island	Hancock	Swan's Island	44-07-20	68-31-10	2
Saddleback Island	Hancock	Swan's Island	44-06-45	68-32-20	45

APPENDIX I

Black Guillemot Nesting Islands

(Compiled by William Drury, 1965-1973, except where noted)

Island Name	County	Township	Coordinates		Number of Guillemots (in pairs)
Spirit Ledge	Hancock	Swan's Island	44-05-22	68-31-25	10
Black Ledge	Hancock	Swan's Island	44-04-55	68-29-40	4
Mason Ledge	Hancock	Swan's Island	44-05-53	68-29-15	12
Heron Island	Hancock	Swan's Island	44-06-00	68-28-20	15
Green Island	Hancock	Swan's Island	44-06-40	68-27-20	10
Green Ledge (Roberts Harbor)	Knox	Vinalhaven	44-02-40	68-47-00	15
Sheep Island	Knox	Vinalhaven	44-02-18	68-47-42	6
Roberts Island	Knox	Vinalhaven	44-00-43	68-48-19	25
Otter Island	Knox	Vinalhaven	44-00-28	68-47-54	5
Brimstone Island	Knox	Vinalhaven	44-00-45	68-46-18	50
Deadman Ledges	Knox	Vinalhaven	44-01-38	68-52-32	10
Little Hurricane Island	Knox	Vinalhaven	44-02-02	68-54-10	8
Green Ledge (Lairey's)	Knox	Vinalhaven	44-04-00	68-55-15	30
Green Island (Lairey's)	Knox	Vinalhaven	44-04-25	68-54-55	10
Grass Ledge (East)	Hancock	Deer Isle	44-11-43	68-51-00	6
Grass Ledge (West)	Hancock	Deer Isle	44-13-08	68-51-00	2
Hard Head Island	Hancock	Deer Isle	44-13-50	68-45-14	15
Shabby Island	Hancock	Deer Isle	44-10-00	68-33-36	15
Colt Head Island	Hancock	Deer Isle	44-14-58	68-50-28	6
Pond Island	Hancock	Deer Isle	44-17-34	68-48-24	6
Wreck Island	Hancock	Stonington	44-07-36	68-38-09	present

APPENDIX I

Black Guillemot Nesting Islands

(Compiled by William Drury, 1965-1973, except where noted)

Island Name	County	Township	Coordinates		Number of Guillemots (in pairs)
Channel Rock	Hancock	Stonington	44-10-00	68-38-05	4
Smuttynose Island	Hancock	Brooklin	44-13-15	68-31-20	10
Ship Island	Hancock	Tremont	44-14-10	68-26-25	4
West Barge Island	Hancock	Tremont	44-14-00	68-26-58	3
East Barge Island	Hancock	Tremont	44-13-55	68-26-26	5
Little Duck Island	Hancock	Long Island	44-10-30	68-14-45	200
Great Duck Island	Hancock	Long Island	44-09-00	68-15-00	850
Long Island	Hancock	Long Island	44-07-00	68-21-30	85
East Green Island	Hancock	Long Island	44-09-40	68-20-00	20
West Green Island	Hancock	Long Island	44-09-30	68-20-30	7
Schoodic Island	Hancock	Winter Harbor	44-20-00	68-02-00	85
Petit Manan Island	Washington	Steuben	44-22-03	67-52-00	25
Egg Rock	Washington	Milbridge	44-24-25	67-52-10	4
Jordan's Delight Island	Washington	Milbridge	44-26-35	67-49-25	250
Ladle Island	Washington	Addison	44-29-00	67-44-20	1
Big Nash Islands	Washington	Addison	44-28-00	67-44-15	10
Pulpit Rock	Washington	Jonesport	44-33-12	67-28-07	3
The Brothers Islands	Washington	Jonesport	44-33-30	67-26-13	3
Halifax Island	Washington	Jonesport	44-34-15	67-27-30	8
Anguilla Island	Washington	Jonesport	44-34-00	67-28-20	10
Head Harbor Island	Washington	Jonesport	44-30-15	67-32-00	6

APPENDIX I

Black Guillemot Nesting Islands

(Compiled by William Drury, 1965-1973, except where noted)

Island Name	County	Township	Coordinates		Number of Guillemots (in pairs)
Ballast Island	Washington	Jonesport	44-33-40	67-33-15	20
Scabby Island Ledge	Washington	Machiasport	44-34-00	67-24-40	10
Hickey Island	Washington	Machiasport	44-35-50	67-25-45	3
Foster Island	Washington	Machiasport	44-34-15	67-23-45	5
Ram Island	Washington	Machiasport	44-34-30	67-23-40	2
Shag Ledges	Washington	Machiasport	44-35-15	67-25-00	12
Inner Libby Island	Washington	Machiasport	44-34-10	67-21-15	5
Outer Libby Island	Washington	Machiasport	44-34-10	67-21-15	15
Cross Island	Washington	Cutler	44-36-30	67-17-30	50
Old Man Island	Washington	Cutler	44-37-08	67-14-12	75
Double Shot Island	Washington	Cutler	44-36-20	67-16-30	50
Ledges In Bay	Washington	Eastport			50
Machias Seal Island			44-30-08	67-06-04	

August 29, 1975

DRAFT

Great Rhododendron

Rhododendron maximum in Maine

A Report Prepared for the Maine Critical Areas Program

by

Harry Tyler

FORWARD

The following report on great rhododendron is one of a series of reports being prepared for Maine's Critical Areas Program. This program was established by an act of the Legislature in 1974 which directed the State Planning Office to develop an official Register of Critical Areas and to encourage and coordinate the conservation of such areas as part of its overall responsibility for comprehensive statewide planning and coordination of planning activities. The act identifies Critical Areas as natural features of statewide importance because of their unusual natural, scenic, scientific, or historical significance.

The Act also created the Critical Areas Advisory Board to advise and assist the State Planning Office in the establishment of the Register and the conservation of critical areas. The program established by the Act is not regulatory, with the minor exception that notification of proposed alterations of critical areas is required of the landowners therof. The program is primarily one of identifying critical areas and providing advice to and coordinating the voluntary activities of landowners, state and local government organizations, conservation groups and others to the end of encouraging the conservation of critical areas. The Critical Areas Program further provides a specific focus for the evaluation and coordination of programs relating to critical areas in Maine. The program also serves as a source of information on critical areas and their management.

The purpose of these reports is to present the results of thorough investigations of subject areas chosen for consideration in the Critical Areas Program. The reports are an intermediate phase in a systematic registration process which starts with the identification of subjects for consideration and concludes with the analysis of each potential critical area individually and, if appropriate, inclusion of areas on the Register.

In addition to the specific task they are intended to fulfill in the registration process it is my hope that these reports will be useful in a more general sense as a source of information on the various topics they cover. For more information on great rhododendron or other aspects of the Critical Areas Program , feel free to contact me or other members of the staff at the State Planning Office.

R. Alec Giffen
Resource Planner

ABSTRACT

Rhododendron, Rhododendron maximum is a woody, evergreen shrub which attains a maximum height of 30 to 40 feet. The large white to reddish flowers give this handsome shrub much appeal to botanists and horticulturists. It grows abundantly and commonly in the south and central Appalachian Mountains, and extends northward to northern New England where only a few scattered stations are known. The northern most natural stand of rhododendrun grows in Lexington, Maine.

Rhododendron is a rare relict species in Maine and only known to occur in seven natural stands. The stands range in size from a few plants to five acres, and in Maine they are found growing in association with cool, acid swamps. Because of rhododendron's rarity in Maine, the major stands are recommended for inclusion in the Register of Critical Areas. Rhododendran is one of two plant species protected by Maine law.

General Information on Rhododendrun

Great Rhododendran, Rhododendron maximum is a large woody shrub belonging to the heath family, Ericaceae. The very thick, leathery, oblong evergreen leaves vary from 3 to 8 inches long. The leaves are dark green above and hairy and whitish below. During very cold winter temperatures, the evergreen leaves roll up around the axis of the leaf. The shrub grows in dense stands to a maximum height of 30 to 40 feet. More often a stand of rhododendron will be 10 to 12 feet high at the center of the stand with lower drooping branches extending laterally. Robinette (1974) gives an excellent, well documented life history and management guide for rhododendron.

This handsome species of shrub has attracted considerable attention because of its very large and beautiful flowers. (Fig. 1) The 5 to 6 inch flowers vary in color from white to reddish. In Maine the flowers bloom during the first two weeks of July. Numerous showy flowers are clustered together at a terminal bud. There are five petals on each flower, and in one flower there usually are twice as many stamen per petal. The pollen is located in an arrangement of four cells on the stamen. The minute scale like seeds form in an elongate capsule.

This luxuriant evergreen gives a tropical appearance and atmosphere to the Maine woods. The beautiful flowers and shiney green leaves give rhododendron much aesthetic value for horticultural uses as an ornamental shrub around buildings and in gardens.

RANGE

Rhododendron occurs from northern Georgia to southern Maine with its center of abundance in the southern Appalachian mountains. (Fig. 2) On the northern border of its range rhododendron exist in scattered stations from southern Maine to New York, to southern Ontario. Rhododendron reaches its peak of abundance in the mountains areas of Pennsylvania, Virginia, West Virginia, North Carolina and eastern Tennessee where it grows up to 4500 feet in elevation. On the southern border of its range,

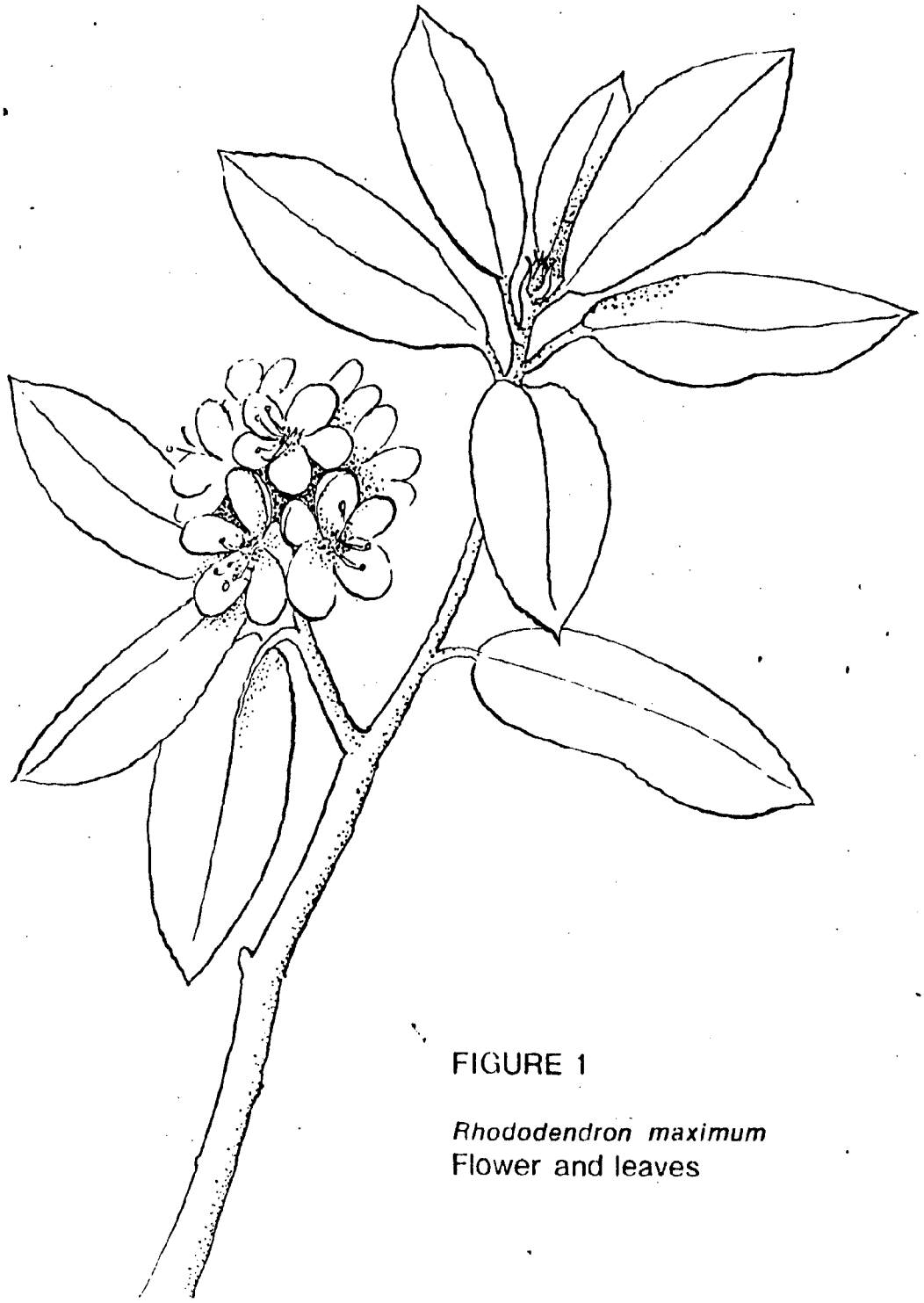

FIGURE 1

Rhododendron maximum
Flower and leaves

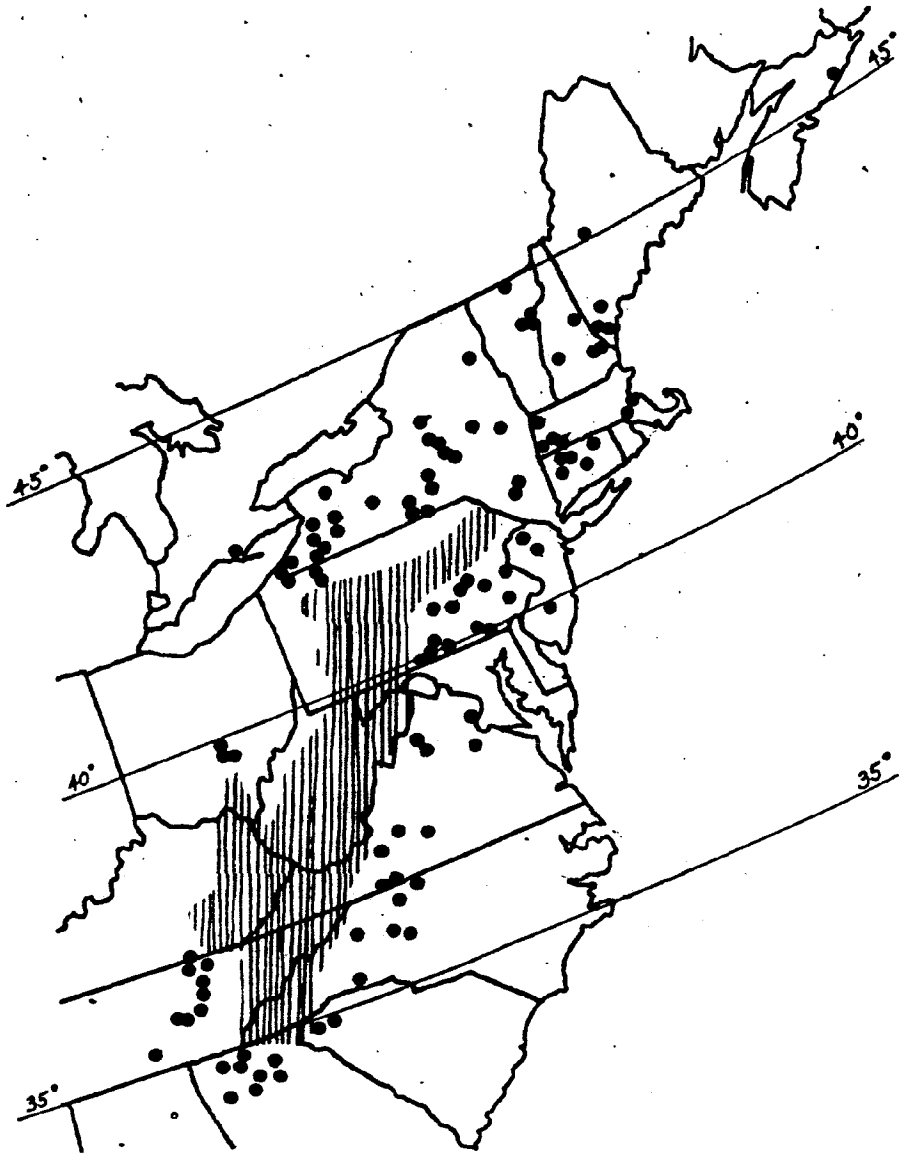

FIGURE 2

Distribution of *Rhododendron maximum*
Data from Iltis, 1956

rhododendron occurs in mountain areas of western South Carolina, northern Georgia and northern Alabama. (Fernald, 1950; Robinette, 1974).

Rhododendron grows at only a few isolated stations in northern New England and has been reported from one station in Nova Scotia. Iltis (1956) lists and details the documentation for the reported isolated station in Nova Scotia. Rhododendron is known to occur at nine stations in Vermont (Vogelmann and Charette, 1963), twelve stations in New Hampshire and seven stations in Maine (Hodgdon and Pike, 1961). The stations in Vermont are clumped in one region rather than scattered throughout the state because rhododendron does not grow in the alkaline soils which are common in much of Vermont (Figure 3). The station in Lexington, Maine is the northern most known natural stand of rhododendron. This species exhibits disjunct distribution at the northern extent of its range. The stands in Maine, New Hampshire or Vermont are relict populations that have survived climactic changes.

Since the retreat of the last glacier there have been two periods of milder climactic conditions than exist today. During these milder climactic periods southern flora could have extended its range into northern regions. It is postulated that rhododendron was more abundant and wide spread in Maine during the milder periods. The stands of rhododendron that exist today in Maine are remnants of a more abundant and wider distribution of the species. These remaining stands exist in a very specialized habitat uniquely suited for rhododendron. (Hodgdon and Pike, 1961)

Occurrence in Maine

The number of natural stands in Maine varies with different reports. Hyland and Steinmetz (1944) plotted 24 stations of rhododendron in Maine from herbaria specimens; however, whether these are naturally occurring plants or cultivated plants is not indicated. Hodgdon and Pike (1961) reported seven stations for natural stands of rhododendron in the towns of Lexington, Somerset County (1 station); Standish, Cumberland County (4 stations); Acton, York County (1 station); and Sanford, York County (1 station), (Figure 4).

The largest stands in Maine are in Sanford and Standish (Table 1).

Table 1
Rhododendron Stands in Maine

Location	Size in acres - estimated	Source
1. Lexington	0.50	Tyler, 1975
2. Standish	0.50	Tyler, 1975
3. Standish	0.03	Tyler, 1975
4. Standish	3.50	Hodgdon & Pike, 1961
5. Standish	0.05	Hodgdon & Pike, 1961
6. Acton	0.05	Hodgdon & Pike, 1961
7. Sanford	5.00	Hodgdon & Pike, 1961

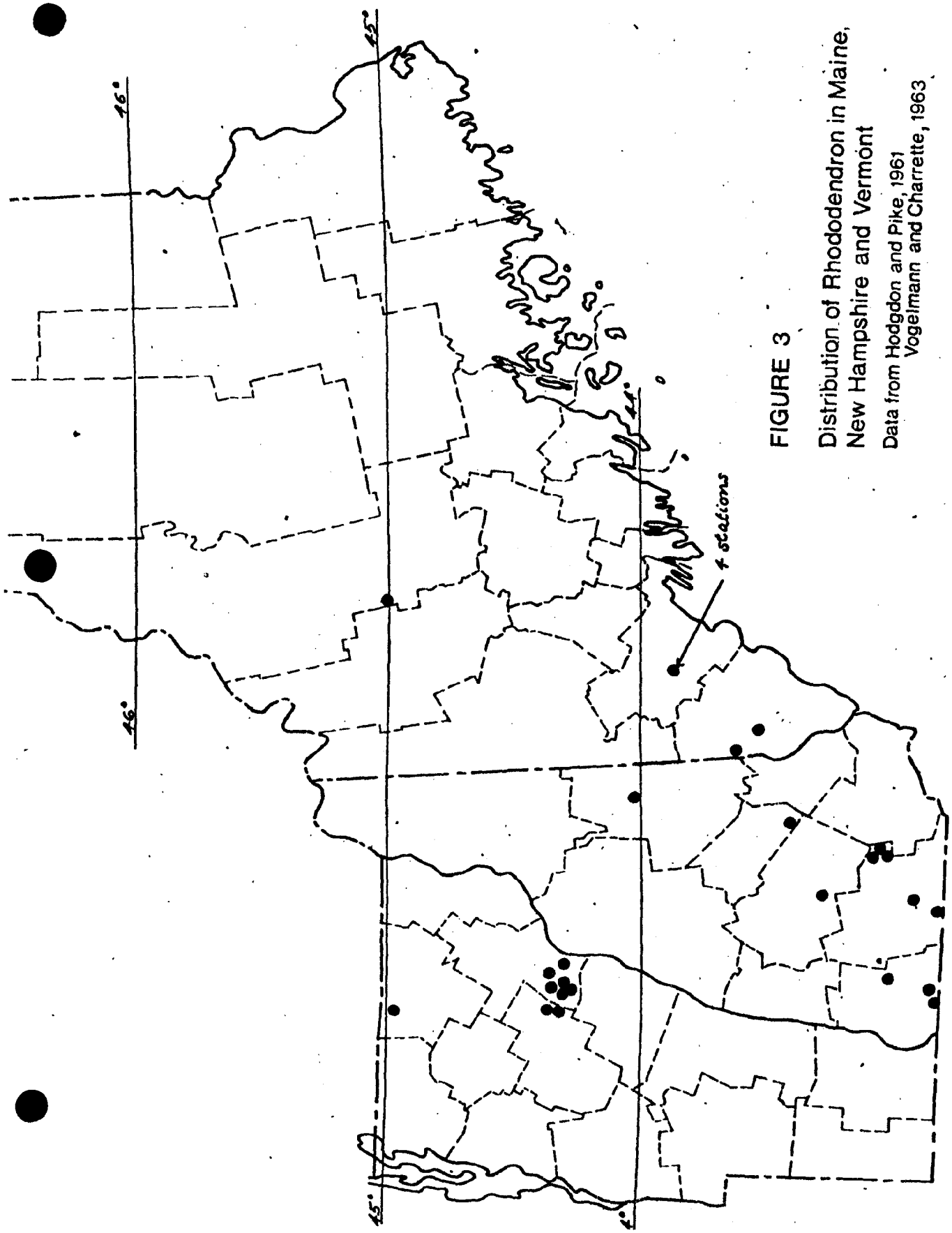

FIGURE 3

Distribution of Rhododendron in Maine, New Hampshire and Vermont

Data from Hodgdon and Pike, 1961
Vogelmann and Charrette, 1963

Rhododendron Habitat

Rhododendron grows in cool, moist deciduous woods. It requires moist, acid soil conditions and shade. The pH of the soil in which rhododendron grows range from 4.5 to 5.5 (Leach, 1961). At the center of its range in the southern Appalachians it grows on the northern slopes of mountains, while at the northern extent of its range it grows in cool acid swamps or in close proximity to swamps.

Rhododendron is a shade tolerant species and is usually found growing under a well developed forest canopy. Stands of rhododendron are associated with specific tree communities. Eastern hemlock (Tsuga canadersis) usually grows with rhododendron, and the hemlock provides much of the required shade (Hodgdon and Pike, 1961). Red maple (Aces rubrum), paper birch (Betula papyrifera), yellow birch (Betula lutea) and beech (Fagus grandifolia) are commonly associated with rhododendron in northern New England. The shrubs, witch hazel (Hamamelis virginiana) hobble bush (Viburnum alnifolium) witherod (Viburnum cassinoides) and striped maple (Acer pensylvanicum) are also associated with rhododendron stands in northern New England (Hodgdon and Pike, 1961).

Rhododendron stands in Maine and New Hampshire are commonly associated with cool, acid swamps. Eleven of the nineteen stands examined by Hodgdon and Pike (1961) in Maine and New Hampshire were growing in swamps. Four of the seven stands in Maine were growing in swamps, while the other three were on slopes in close proximity to swamps. The largest rhododendron stand in Maine grows on the border of a wet sedge red maple swamp in Sanford. Hodgdon and Pike (1961) postulate that in New Hampshire and Maine the juxtaposition of slopes and swamps provide alternate habitats for rhododendron during climactic changes. By utilizing the different habitats, the species is able to survive in the climate of northern New England.

Rhododendron stands in Maine are growing under climactic conditions which are close to the limits which the species can tolerate. The plants in Maine have adapted to the climactic rigors of the region, and they also exist in habitats ideally suited for their survival in northern New England. Hodgdon and Pike (1960) state that rhododendron leads a precarious existence in northern New England. These stands may expand and contract in response to climactic trends, the vigor, and the age of the stand. Maine stands have experienced fluctuations in vigor and size over the years. There are no records of a natural stand becoming extinct in Maine.

Reproduction

Rhododendron reproduces by means of seeds, sprouts, layers and suckers. About 300-400 minute seeds, 1/32 inch long, are contained in each capsule. Seeds which are dispersed for a short distance by wind require a moist, mossy shaded area for germination and proper growth. Seedlings are usually found outside the perimeter of a stand. In Maine and New Hampshire, Hodgdon and Pike (1961) found seedlings in all the larger rhododendron stands. Graber (1972) noted that rhododendron seedlings occupy a special niche requiring (1) a rich organic substrate of decomposed wood and leaves, (2) a mounding of the soil so that seedlings will not be buried by leaves, and (3) abundant moisture near the substrate surface.

Layering is one of the principal means of vegetative regeneration of natural stands. Branches which bend to the ground, especially on the perimeter of the stand,form a root system where the branch contacts the ground. By layering a stand is able to spread laterally. Shoots and sprouts develop from the root system to contribute to the spread of a stand. Suckers grow profusely from recently cut stems.

Factors Influencing Rhododendron Stands in Northern New England

Natural stands of rhododendron in the northeast lead a precarious existence. These stands which experience natural fluctuations in their health and vigor are affected by variations in soil moisture, the amount of tree overstory as well as by browsing deer and winter kill.

Stands which grow in low light regions under dense hemlock stands often display reduced vigor. Stands appear to show the best growth in areas of moderate shade rather than heavily shaded areas. At a small stand in Standish, the upper most branches of the stand were growing at a slant towards a shaft of sunlight penetrating a hole in the forest overstory. Likewise, stands that are exposed to strong light regions (often by the removal of the tree overstory) display reduced vigor. Direct sunlight falling on the stand would greatly increase the air temperature and the plant temperature. Increased sunlight would increase the soil temperature and as a result the decomposition of organic matter would be increased. The ground moisture would be reduced by increased evaporation from higher temperatures and increased wind movement. Plants could also die from sudden exposure to increased light.

Rhododendron leaves comprise an important component of deer's diet in the central Appalachian mountains (DeGarmo and Gill, 1958). Hodgdon and Pike (1960) reported that deer had eaten a considerable portion of the rhododendron leaves at the stand at Safford Pond. Large deer numbers are evident in the Safford Pond area by the distinct browse line on the arbor-vitae around the pond. In extreme southern Maine, deer populations are apparently low, and deer browsing has posed no threat to the stands in Standish and Sanford.

Since the species is at the northern extent of its range, populations in northern New England are exposed to low temperatures which often approach and sometimes exceed the temperature tolerance for northern populations. Vogelmann and Charette (1963) report that the station in Troy, Vermont is in a region which experiences -30° F, during the winter. Usually winter kill is caused by desiccation which results from wind movement.

Extreme low temperatures occurred in 1972 when there was little snow cover resulting in the winter kill of evergreen shrubs in the Farmington, Maine area. The recent dramatic decline in the Safford Pond stand could have been caused by winter kill.

Threat of Destruction

The aesthetic appeal of rhododendron has attracted horticulturists and gardeners to dig up and remove the plants from the natural stand. However, there are only a few isolated reports of degradation by man of natural stands. Furthermore, Hodgdon and Pike (1960) state

that the deline in vigor of natural stands cannot be attributed to direct despoliation by man. Cowan (1899) noted that rhododendron "which are often transplanted, rarely survive in cultivation," implying that the plant was often dug up in the late 1880's.

Rhododendron maximum in Maine is protected from removal, injury or digging up without the consent of the landowner by state law M.R.S.A. 17 § 2502.

§ 2502. Injuring or destroying rhododendron and kalmia.

> "Whoever without the consent of the owner of the land whereon the same may be growing injures, destroys, digs up or removes any rhododendron maximum linnaeus or kalmia latifolia linnaeus, or any part or parts of the plants of either of said species growing upon the land of another, shall be guilty of a misdemeanor and shall be punished by a fine of not more than $100 and in addition thereto shall be liable to the owner of the land upon which the same was growing in a civil action in treble damages."
>
> R.S. 1954, c. 131, § 31; 1961, c. 317, § 460

Foraging and browsing by deer would reduce the vegetation on the shrub and threaten the vigor of the stand.

Removal of the tree canopy would expose the rhododendron stand to increased light and wind which would result in increased ambient air and soil temperature and desiccation of the soil.

Mr. Norman Scott, a forester who manages S.D. Warren's land in southern Maine reports that there are a few isolated incidents of persons digging up a few plants from the Standish stands.

The Major Rhododendron Stands in Maine

1. Safford Pond, Lexington (Somerset County)

The Safford Pond Rhododendron Stand is the northern most natural growth of the species in North America. It is about six miles north of a stand in Troy, Vermont (Vogelmann, pers. comm.). Mr. Nathan Safford discovered the stand in 1845, and its location was recorded as a noteworthy botanical area in 1899 (Cowan, 1899). The Josselyn Botanical Society visited the station in 1919 (Norton, 1919).

The stand is located about 200 feet northeast of Safford Pond on the edge of a sphagnum moss-alder thicket. The dominant trees in the area are eastern hemlock (Tsuga canadersis), red maple (Acer rubrum) and arbor-vitae (Thuja occidentalis). The area was cut for timber several years ago and is presently exposed to strong sunlight. The stand in 1975 showed very poor vigor.

Fluctuations in the size and vigor of the stand has been documented by many interested parties. (Table 2) The Stand apparently was vigorous during the first half of the 20th Century, and then health of the stand declined during the 1950's to the present. During the 1950's part of the area where the stand grew was flooded by a beaver flowage.

Table 2

Safford Pond Rhododendron Stand

Year	Size (estimate)	Health	Source
1845	A few square rods *	Healthy	Cowan, 1899
1899	-----	Healthy	Cowan, 1899
1919	-----	Healthy	Norton, 1920
1924	0.75 acre	Healthy	Whitten, 1924
1949	Nearly two acres	Healthy	Knowlton 50
1951	0.75	Vigorous	Hodgdon & Pike 1960
1954	0.30	Poor	Hodgdon & Pike 1960

* a rod is 16.5 feet

Deer apparently ate a considerable amount of the foliage by 1954. Several large evergreens (probably hemlock) were removed during the timber operations in the late 1960's. During the winter of 1972 there were extreme low temperatures when there was little snow on the ground to protect the plants from winter kill. Extensive winter kill was reported in the Farmington area and probably resulted in a further decline in this stand. Dr. John Mudge abd Mr. Bernard Etzel of Farmington who have visited the Safford Pond Rhododendron Stand on several occasions in the early 1970's, reported a significant deterioration in the stand during the past few years upon seeing the stand in 1975.

The stand in 1975 consisted of mostly dead clumps of twisted stalks and branches that covered an area about 150 feet by 150 feet. Only two or three living erect stalks about 8 feet high were found. On the ground there were many young vigorous vegetative shoots protruding from the moss ground carpet.

2. Chandler Rhododendron Stand (Number 1) Standish (Cumberland County)

This is the largest rhododendron stand in Standish, and it grows about one mile east of Sebago Lake in close proximity to the other Chandler stands. The size of the stand is estimated at three acres, and measures about 420 feet by 240 feet by 90 feet. There are several small clumps growing away from the main stand. The main stand grows in moist, level soil under a red maple grove. The stand is very vigorous and is spreading by layering. In August, 1975, many fresh seed pods were seen indicating the plants flowered earlier in the summer. The land surrounding the stand is forested and was last cut about 1962.

3. Chandler Rhododendron Stand (Number 2) Standish (Cumberland County)

The Chandler Stand lies about one mile to the east of Sebago Lake. The oblong shaped stand measures about 270 feet by 90 feet, which is about 0.5 acres. It is on level, relatively dry ground. The stand in 1975 was vigorous, and showed improved health, according to Mr. Norman Scott of S.D. Warren Company. The shrub averaged four to seven feet with a maximum height of ten feet to twelve feet. When visited on July 9, 1975 the stand was in full bloom.

Trees providing a canopy were red maple, eastern hemlock, white ash, beech, red oak and black gum.

When the area was selectively cut in 1970, no trees were cut in the rhododendron stand.

4. Chandler Rhododendron Stand (Number 3) Standish (Cumberland County)

The third Chandler Stand lies about one mile east of Sebago Lake on relatively flat ground. The small circular stand measures about 45 feet by 30 feet, and is on dry level ground. The stand showed strong vigor on July 9, 1975 and a small section was in full flower. Red maple, red oak, hemlock, and white birch were the trees growing in the stand.

5. Harvey Butler Rhododendron Stand, Sanford (York County)

The Harvey Butler Rhododendron Stand is the largest natural stand in Maine composed of about five acres of rhododendron (Hodgdon and Pike, 1961). One dense impenetrable thicket comprises 3.3 acres (Graber, 1972) while the remaining two acres of rhododendron are in scattered stands within 500 feet of the main stand. These scattered stands range in size from a few plants to clumps 70 feet in diameter.

The stand grows in gently undulating terrain bordering a red maple wet sedge meadow. The rhododendron grows on a short steep (20% to 40%) northward facing slope bordering the wet meadow, which has checked the northward spread of the plants. Scattered stands have grown southward from the swamp on a plateau about 50 feet above the swamp.

The stand shows excellent vigor with many seedlings present. Hodgdon and Pike (1961) noted that the stand was gradually increasing in size. The foliage ranges in height from layers on the ground to a maximum height of 15 feet; the average height ranges from 6 to 12 feet. Graber, who surveyed the stand in the fall of 1971, found three stem diameter classes 0.1 to 0.3 inches; 0.4 to 0.7 inches; and 0.9 to 1.0 inches. The oldest stems dated back to the 1920's.

A tree canopy of red maple, paper birch, beech and hemlock dominated the rhododendron stand. The ground cover of rhododendrons was so thick that there were few young trees. The dominant trees averaged 56 feet high with a diameter at breast height of 8.3 inches and an average age of 54 years (Graber, 1972). These trees started growing about the time of the 1920 logging operation in the area.

The activities of man have had a pronounced effect on the rhododendron stand. Part of the stand might have been destroyed in 1788 when a dam raised the water level 8 to 12 feet in the present swamp. The area was heavily logged in the 1920's and apparently extensive damage was done to the stand. There is some evidence to indicate that cattle might have been pastured there during the 1920's. The main incursion on the natural growth of the forest canopy was some fairly heavy cuttings of maple and birch trees in a few stands in the early 1970's, to apparently favor the growth of new shoots and encourage flower production. The New England Wildflower Society owns the rhododendron stand in a 45 acre lot which is maintained as a botanical sanctuary.

General Analysis of Rhododendron Stands for Inclusion on the Register of Critical Areas.

1. Conformance with the definition contained in the Act

The Act defines a critical area as meaning: "areas containing or potentially containing plant and animal life or geological features worthy of preservation in their natural condition, or other natural features of significant scenic, scientific or historic value."

Natural stands of Rhododendron maximum are very rare in Maine because the species is at the northern extent of its range. There are only four known stands greater than one-half acre in Maine. These areas are well known to botanists

because of their rarity in Maine and they have been the subject of several scientific papers. Because of rhododendron's great aesthetic appeal and scientific interest, the natural stands in Maine are worthy of preservation. The major stands of rhododendron in Maine can be considered to be critical areas under the legislated definition.

2. Considerations in Registration

A. Values and qualities represented by the area (specifically including any unique or exemplary qualities of the site).

Rhododendron maximum is a very rare species of exceptional floral beauty in Maine. There are only four natural stands of rhododendron of any significant size in Maine. The stand in Lexington is the northern most natural stand of rhododendron. The stand in Sanford is the largest stand in Maine.

B. Probable effect of uncontrolled use (specifically in relation to its intrinsic fragility).

Uncontrolled timber activities in the immediate vicinity of rhododendron stands could result in the cutting and removal of mature trees which provide an essential canopy and necessary shade to maintain the ecological conditions required by rhododendron. Timber operations could possible damage the stands when logs are hauled out.

Digging up and removing rhododendron plants for horticultural uses would threaten the stands in Maine, as well as picking the flowers when in bloom.

A change in ownership could jeopardize the rhododendron stands. Road construction for logging operations could threaten the stand. Housing developments near the stands in southern Maine would increase the chances of visitation and vandalism.

C. Present and probable future use (specifically present and future threat of destruction).

The rhododendron stands in Lexington and Standish are owned by timber companies who use the land for timber production, while the stand in Sanford is owned by the New England Wildflower Society who maintain the area as a botanical sanctuary. During recent timber cutting operations, no cutting was allowed in the stands in Standish.

Several large trees were removed from the stand in Lexington during a recent timber cutting operation.

Because of the interest in conserving the present stands of rhododendron, the timber operations will probably not be a threat in the future. The greatest future threat to the rhododendron stands will be from vandalism by picking flowers and digging up and removal of plants.

D. Level of Significance

The four major rhododendron stands in Maine are of regional significance because these scattered stations are the northern limit of the species.

E. Probable effect of registration - positive and negative (specifically including the economic implications of inclusion of the area on the Register).

The expected positive effects of registration will be to give official recognition of the importance of the four major rhododendron stands in Maine. Registration will help to encourage the monitoring of the rhododendron stands and also should encourage the conservation of the major stands.

There should be little economic implications of the registration of the timber companies'land because the size of the areas involved are very small. Furthermore, the owners of the stands in Standish have had a no cutting policy for their rhododendron stands.

F. Management Suggestions

Conservation of the existing stands of rhododendron depend upon maintaining a forest of uneven age distribution in order to:

1. provide shade for the larger rhododendron
2. prevent excessive overshading
3. provide suitable habitat through the years
4. provide proper soil conditions for seed germination and growth

If the trees growing in and immediately around the stands of rhododendron are to be removed, they should be removed judiciously.

The stands should be monitored to check for vandalism of the plants and evidence of deer browsing.

G. Owner's Attitude

The attitude of the New England Wildflower Society which owns the stand in Sanford is expected to be favorable towards registration.

The attitude of the timber companies which own the stands in Standish and Lexington is favorable to the registration of the rhododendron stands.

Recommendations

It is recommended that the following actions be initiated by the Critical Areas Program:

1. Because Rhododendron maximum is a rare and unusual species in Maine, the major stands of this species should be included on the Register of Critical Areas. The following areas should be registered: Safford Pond Rhododendron Stand, Lexington;

The Harvey Butler Rhododendron Stand, Sanford; the Chandler Rhododendron Stand, Numbers 1 and 2, Standish. These four areas should be evaluated in detail for inclusion on the Register.

2. These rhododendron stands should be periodically monitored to check for the condition of the stand with special attention given to the stands vigor, vandalism and nipping by deer.

3. New natural stands of rhododendron that are found growing in Maine should be evaluated. If they meet the qualifications of a critical area, they should be registered.

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September 2, 1975

Oyster Beds in Maine

A Report Prepared for the Maine Critical Areas Program

by

Joel Cowger

FORWARD

The following report on oysters is one of a series of reports being prepared for Maine's Critical Areas Program. This program was established by an act of Legislature in 1974, which directed the State Planning Office to develop an official Register of Critical Areas and to encourage and coordinate the conservation of such areas as part of its overall responsibility for comprehensive statewide planning and coordination of planning activities. The act identifies Critical Areas as natural features of statewide importance because of their unusual natural, scenic, scientific, or historical significance.

The Act also created the Critical Areas Advisory Board to advise and assist the State Planning Office in the establishment of the Register and the conservation of critical areas. The program established by the Act is not regulatory, with the minor exception that notification of proposed alterations of critical areas is required of the landowners thereof. The program is primarily one of identifying critical areas and providing advice to and coordinating the voluntary activities of landowners, state and local government organizations, conservation groups and others to the end of encouraging the conservation of critical areas. The Critical Areas Program further provides a specific focus for the evaluation and coordination of programs relating to critical areas in Maine. The program also serves as a source of information on critical areas and their management.

The purpose of these reports is to present results of thorough investigations of subject areas chosen for consideration in the Critical Areas Program. The reports are an intermediate phase in a systematic registration process which starts with the identification of subjects for consideration and concludes with the analysis of each potential critical area individually and, if appropriate, inclusion of areas on the Register.

In addition to the specific task they are intended to fulfill in the registration process, it is my hope that these reports will be useful in a more general sense as a source of information on the various topics they cover. For more information on oysters or other aspects of the Critical Areas Program, feel free to contact me or other members of the staff at the State Planning Office.

R. Alec Giffen
Resource Planner

ABSTRACT

Two species of oysters, the American oyster, Crassostrea virginica, and the European oyster, Ostrea edulis, are present in Maine. The American oyster is found naturally in significant numbers in the Marsh River (a tributary of the Sheepscot River) and in the Piscataqua River. Breeding populations of the introduced European oyster are found in the Boothbay region.

Information on the biology of the species, limiting factors influencing oyster populations, and the location, history, size, health, and importance of the populations is presented. It is recommended that the two breeding areas of the American oyster be registered as critical areas, and management guidelines are proposed.

INTRODUCTION

No marine invertebrate has been studied more than the oyster. Oystering is a large industry in several areas of the world, particularly the United States, Japan, Europe, and Australia. Several species occur which belong to two genera - Crassostrea, or cup oyster (from the fact that the left valve is deeply cupped), and Ostrea, or flat oyster. Two species of oysters are found on the Maine coast - the native American or Eastern oyster, Crassostrea virginica, and the European oyster, Ostrea edulis, which was first introduced to Maine in 1949.

The following paper presents available information on natural American oyster populations in Maine. A brief account of the introduced European oyster will be included as an appendix.

The American Oyster

The American oyster is found in estuaries along the eastern coast of North America from the Gulf of St. Lawrence south to Panama and the West Indies. Formerly the basis for a huge fishery in the Chesapeake Bay, which at one time late in the nineteenth century produced over half of the world's oysters, the American oyster industry has been adversely affected by siltation and pollution along the coast, and presently produces only a fraction of previous production. The major oyster areas in the United States are the Chesapeake Bay region and the Gulf coast, as Table 1 shows.

The Canadian oyster industry is centered in the Maritime Provinces with Summerside Harbour on Prince Edward Island and Caraquet Bay in New Brunswick providing at least 70 percent of the total Maritime production, which has a dollar value of about $500,000 per year (Rowell, pers. comm.).

The American oyster (Fig. 1) ranges in length up to 20 cm or more, depending on the environmental conditions. Because oysters are harvested after achieving a length

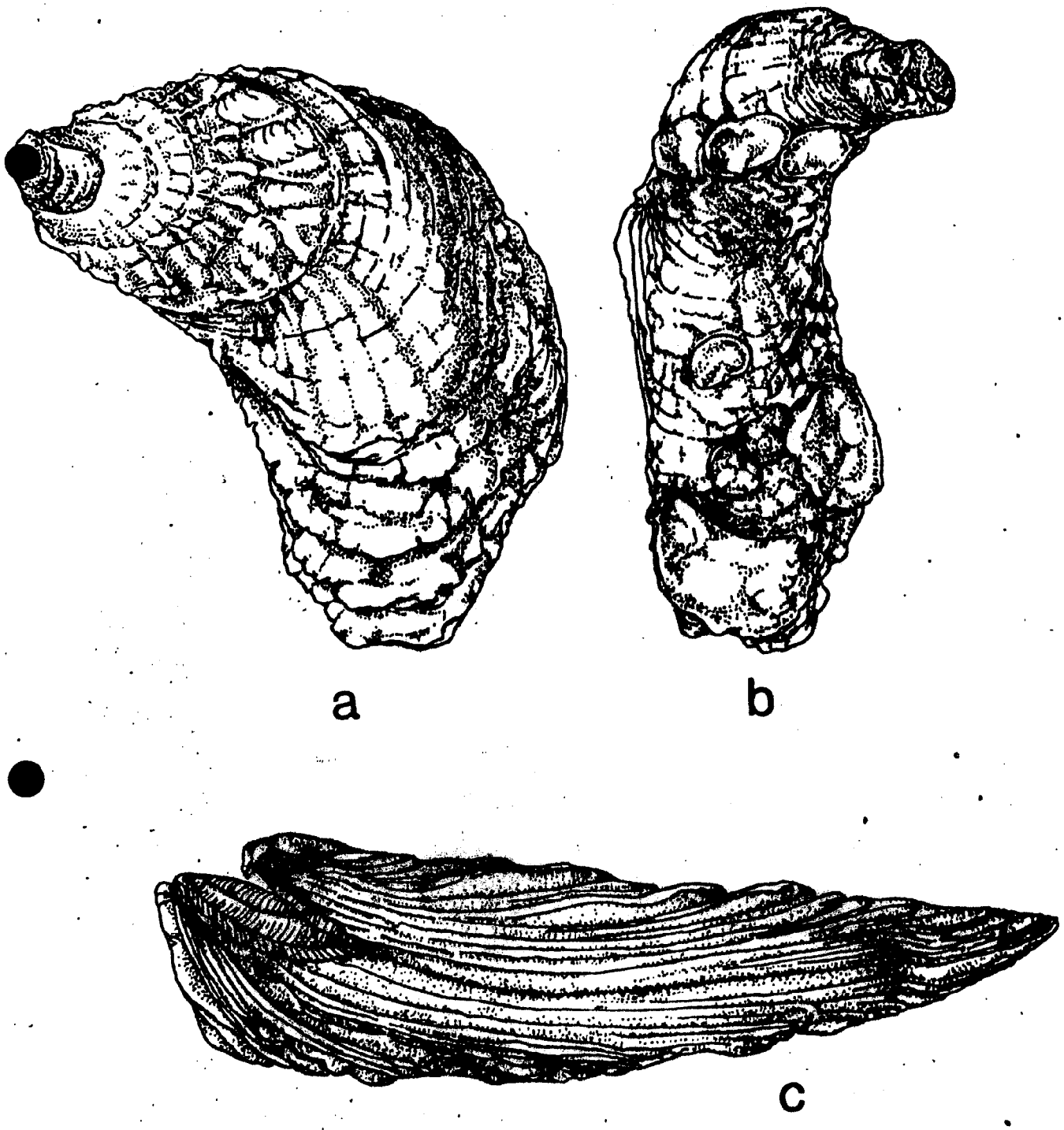

Fig. 1. The American oyster, Crassostrea virginica. a – left, or lower, valve. b – right, or upper valve. c – side view. Note shells of small oysters which have settled and grown on the right valve. (from Galtsoff, 1964).

TABLE 1

Landings of American Oysters, 1970

	Thousand Pounds	Thousand Dollars
New England		
Massachusetts	58	166
Rhode Island	7	9
Connecticut	125	228
Middle Atlantic		
New York	520	1,074
New Jersey	677	557
Delaware	216	133
Chesapeake		
Maryland	16,625	9,653
Virginia	8,043	5,427
South Atlantic		
North Carolina	383	269
South Carolina	852	485
Georgia	179	100
Florida, East Coast	212	120
Gulf		
Florida, West Coast	3,573	1,475
Alabama	279	158
Mississippi	548	238
Louisiana	8,639	3,631
Texas	4,675	2,040
Pacific Coast*		
California	17	49
TOTAL	45,628	25,812

*transplanted from East Coast

of at least 10 cm, exceptionally large oysters such as the 22.1 cm one discovered by Kulik (1974) in the Montsweag Brook on the Maine coast are found only in isolated pockets where harvesting has not been feasible. Galtsoff (1964) states that the largest oyster ever recorded in America was found in the Damariscotta River in Maine and measured 35.5 cm long with a width of 11 cm. Rate of growth varies with environmental conditions, but, in general, a New England oyster may require 3-5 years to reach 10 cm. Oysters in warmer water may grow considerably faster.

Oysters feed on plankton - minute, usually one-celled organisms which float with the current. The oyster filters the water through its gills, catching the plankton and transporting it to the mouth by ciliary action.

Spawning takes place when the water temperature reaches 20° C or thereabouts. In warmer waters of the southern United States, several spawnings may take place each year. In the colder waters of New England and the Maritimes, only one spawning usually occurs during the summer, despite the fact that northern oysters may spawn at slightly lower water temperatures.

Female American oysters produce a prodigious number of eggs, up to 50,000,000 per spawning. The eggs are shed directly into the water and fertilized externally by spermatazoa from the male oyster. The larvae float in the water for 2-3 weeks, depending on water temperature, turbidity, and substrate availability. Survival is affected by the above conditions, as well as predation from a variety of marine organisms. When the larval development has been completed, the young oysters search for a suitable firm substrate, which may be adult oyster shells, dead shell, pilings, logs, rocks, or even large algae. The larvae then settles on the material, cements its left valve onto the substrate, and remains at that location for life.

American oysters require a water temperature of at least 6-7° C to commence feeding. For this reason, oysters in New England and the Maritimes feed for only six months or so each year.

Oysters are euryhaline, able to tolerate wide variations in salinity. The American oyster, however, thrives best in areas of relatively low salinity - 12-20 parts per thousand (ppt) (normal seawater being 35 ppt). It is therefore found most commonly in estuaries, where the salinity is somewhat reduced, and the water temperature is usually higher than along the exposed coast.

Areas of Naturally-Occurring Oysters in Maine

There is no evidence to suggest that oysters have ever been widely distributed in Maine. Most of the Indian shellheaps along the coast consist entirely of clams, quahogs, mussels, scallops and other molluscs, with oyster shells in only a few. Galtsoff and Chipman (1940) provide an interesting and informative historical account of the Maine oyster.

The well-known Damariscotta shellheaps are the only locations with large numbers of oyster shells, but, as Galtsoff and Chipman (1940) point out, these were accumulated over a period of hundreds of years. The original bed was probably located in the shallow salt pond above Damariscotta and Newcastle. Goldthwait (1935) calculates that the bed once covered roughly 600,000 square feet, and yielded 800 to 900 bushels per year. He also estimates that the bed was being exploited as much as 1800 years ago. Only scattered specimens still survive in the area. Galtsoff and Chipman (1940) suggest that construction of the dam and railroad embankment at the mouth of Damariscotta Lake, which resulted in restriction of warm fresh water flow into the salt pond, and the building of a match factory at Damariscotta Mills, which resulted in the deposition of large amounts of sawdust and trash, virtually destroyed the suitable oyster habitat.

The Sheepscot River above Wiscasset also once produced excellent oysters. Galtsoff and Chipman (1940) relate the history of the upper Sheepscot oyster beds. Scattered oysters apparently always occurred in the area, but when a lumber mill and dam with tidal gates were constructed at Sheepscot many years ago, the restricted exchange of water apparently allowed the upper Sheepscot to warm considerably, triggering successful spawning. Oyster larvae settled on logs as they floated in the water, and the shells of the oysters interfered with sawing of the logs at the mill. When the dam was removed, the water temperature presumably dropped back below the spawning threshold, with a corresponding reduction in the oyster population. The only oysters in the immediate area now are small populations just above and below the falls at Sheepscot.

At present, there are two areas in Maine with substantial natural populations of American oysters - the Piscataqua River at Eliot, and the Marsh River and adjoining Deer Meadow Brook, a tributary of the Sheepscot River at Newcastle. These two locations are shown in Figures 2 and 3. Scattered solitary specimens, such as the one found by Kulik (1974) in Montsweag Brook, may occur in the lower Sheepscot and Damariscotta estuaries. Small pockets of oysters are also found in the lower Piscataqua estuary.

Factors Influencing Oyster Populations in Maine

Welch (1963) mentions three important limiting factors in the abundance of oysters in Maine: air temperature, substrate, and hydrographic conditions.

Freezing winter temperatures severely weaken and kill exposed oysters, thus eliminating the intertidal zone as suitable habitat. In southern states, oysters may grow in profusion in the intertidal zone. Associated with low winter temperatures is the accumulation of ice, which in shallow areas may freeze to the bottom, making the area unsuitable. Ice may also scour the bottom, destroying oysters.

Oysters require a firm substrate on which to settle when the planktonic larval stage is complete. In most areas of Maine the bottom is too soft and silty to support oyster populations. The firm substrate that is available is often covered by competing organisms such as barnacles, algae, and sea squirts.

The American oyster requires relatively high water temperatures and relatively low salinities to grow and reproduce successfully. Estuaries offer the best combination

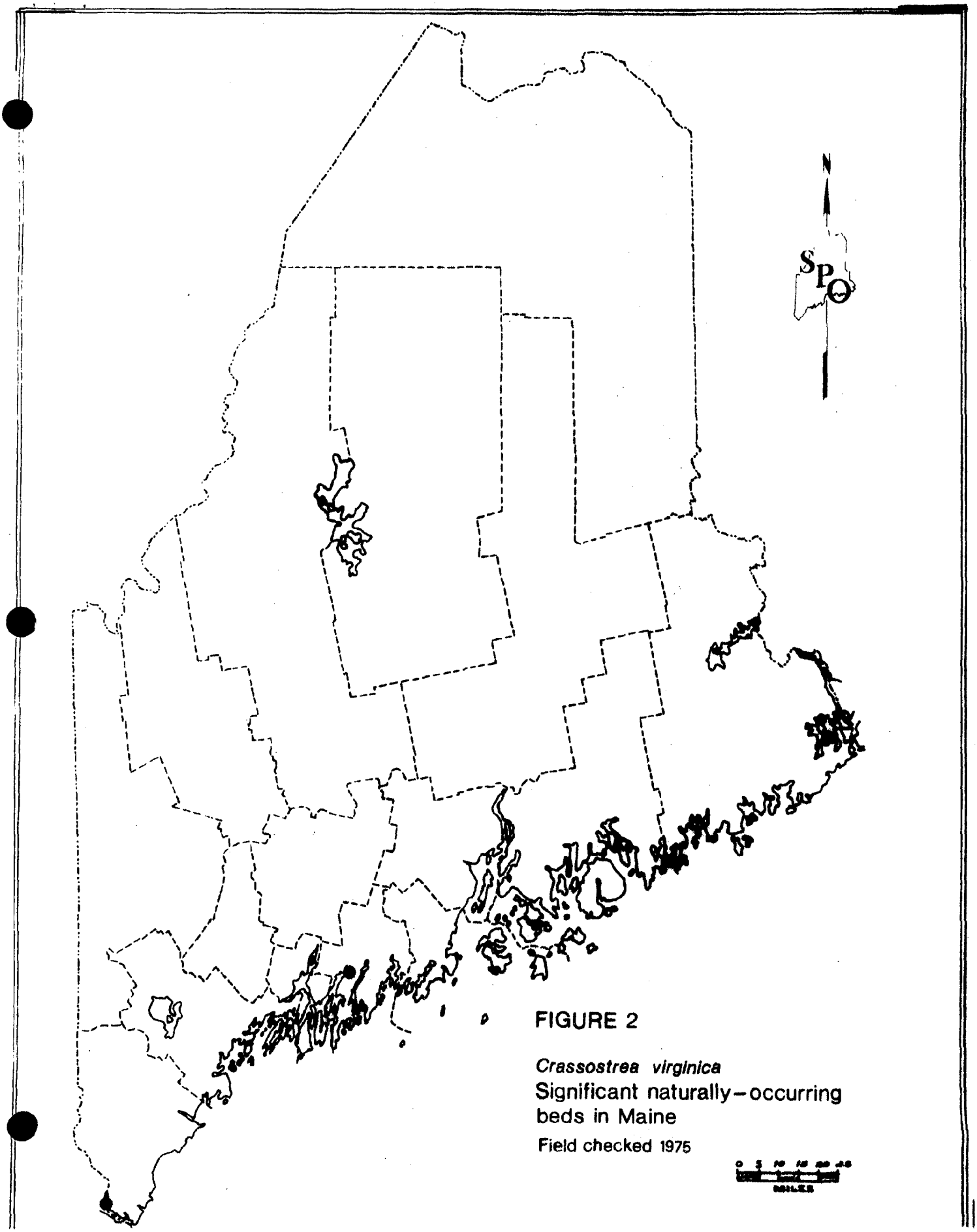

FIGURE 2

Crassostrea virginica
Significant naturally–occurring beds in Maine
Field checked 1975

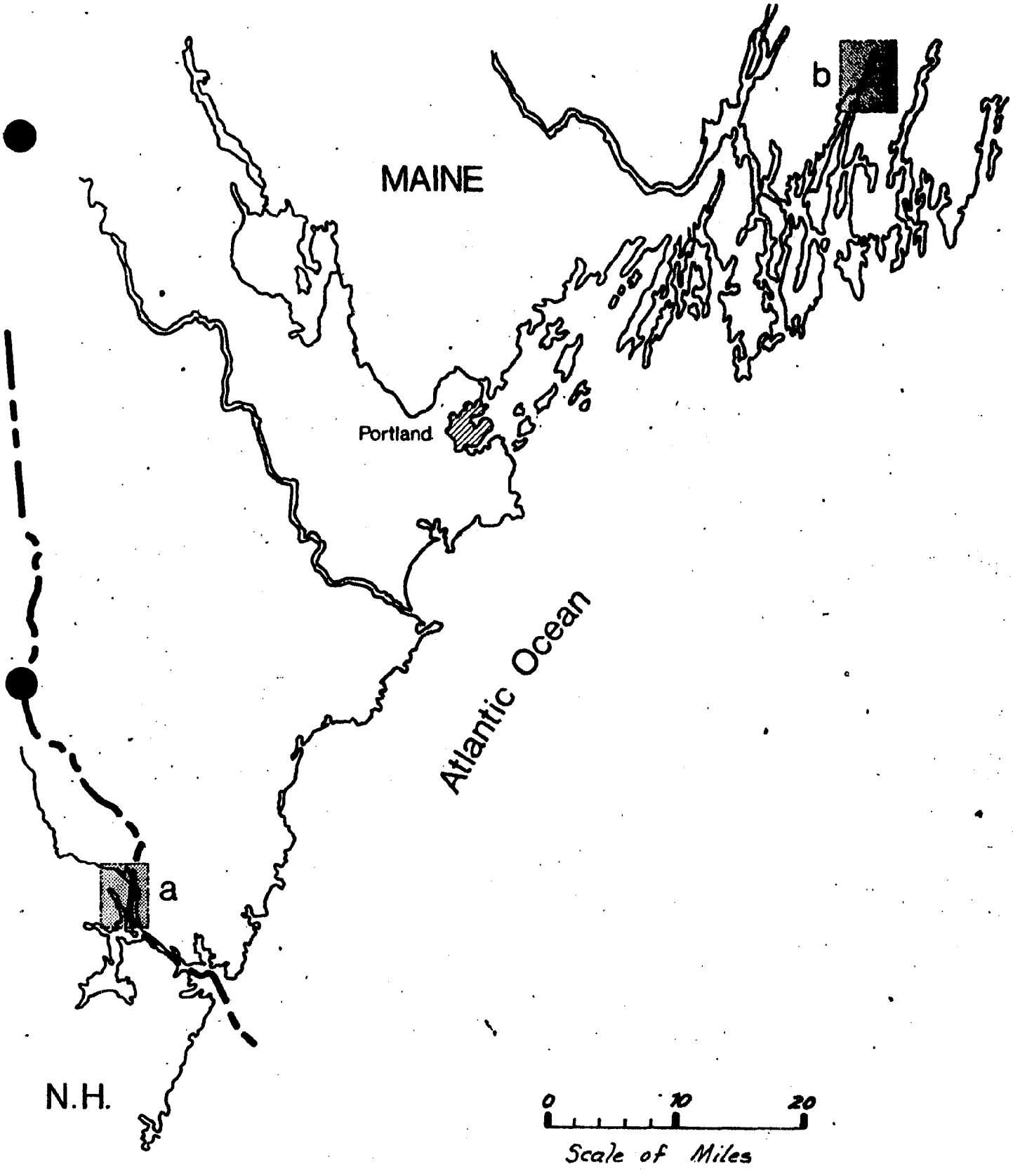

Fig. 3. Map of southern coastal Maine, showing locations of the two significant naturally-occurring American oyster populations in Maine. a – upper Piscataqua River, on the New Hampshire border. b – Marsh River, a tributary of the Sheepscot River.

of these factors, and Maine simply does not have extensive estuarine areas. Even in the small estuaries along the southern and mid-coast regions of Maine, the water temperature is often not high enough to induce successful spawning.

Common predators of oysters include oyster drills, starfish, crabs, fish, and birds. Probably the two most voracious predators in the northeastern United States are the oyster drill Urosalpinx and the starfish Asterias. Neither of these predators are found in the upper Piscataqua River or the Marsh River. Predation does not seem to be a limiting factor in these oyster populations.

Commensal organisms may damage oysters. The boring sponge Cliona can perforate the shell, and the polychaete worm Polydora living in the shell causes formation of protective shell "blisters" by the oyster. In both cases, the oyster may be seriously weakened. No estimates are available concerning the extent of Cliona or Polydora infestation in Maine oysters.

Oysters are susceptible to a variety of diseases. Massive outbreaks of disease in oyster communities have been documented often (Galtsoff, 1964). The haplosporidian protozoan MSX caused huge mortalities in the Middle and South Atlantic oyster populations in the 1950's and '60's. Flagellates and fungi have also been associated with significant oyster mortalities. At least in recent history, Maine oysters do not seem to have been adversely affected by disease, although Farley, et. al. (1972) reported a virus infection in a number of oysters from the Piscataqua River.

Environmental degradation may result directly in mortalities due to starvation, siltation and resultant clogging, or chemical poisoning. Indirectly, siltation or pollution may weaken oysters, increasing their susceptibility to disease and predation (Laird, 1961).

The American Oyster in the Piscataqua River

The Piscataqua River is a tidal estuary between Maine and New Hampshire formed by the meeting of several rivers and streams. The Salmon Falls River and the Cocheco River enter the head of the estuary and five rivers enter the lower Piscataqua via Great Bay in New Hampshire.

The oyster beds in the Piscataqua River are located in the region of the confluence of the Cocheco River and the Salmon Falls River, approximately 5 miles upriver from Kittery. A survey of the beds was undertaken in 1964 by the Maine Department of Sea and Shore Fisheryes (Harriman and Sterl, 1964), and the locations are shown in Fig. 4. The beds at that time occupied an area of 66.1 acres, and contained about 23,600 bushels of oysters. Bradford Sterl, regional biologist for the Maine Department of Marine Resources (formerly Sea and Shore Fisheries), has told this author that the location and size of the beds has not changed significantly since the 1964 survey. Apparently in former times the beds extended well up the Salmon Falls River to South Berwick, and down the Piscataqua to Great Bay, but even the surviving relic beds comprise the largest oyster population to which the State of Maine has access. A new survey of the beds should be conducted when funds are available, to quantitatively measure the current population.

The Piscataqua and Salmon Falls Rivers divide Maine and New Hampshire.

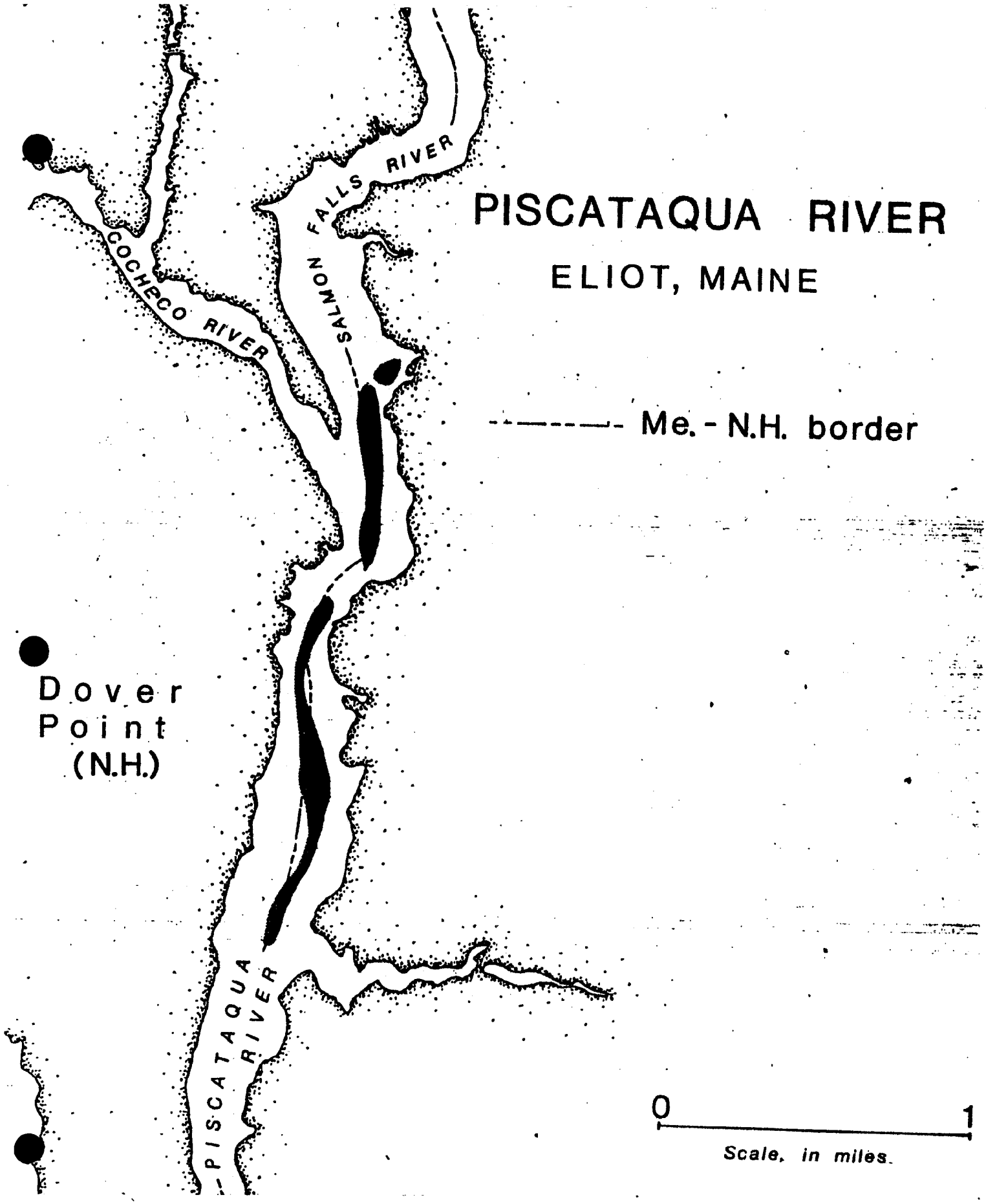

Fig. 4. The upper Piscataqua River at Eliot, Maine. Cross-hatched areas represent beds of American oysters (from Harriman and Sterl, 1964).

The actual border could be located using USGS benchmarks along the shore, although some of the benchmarks may be difficult to locate or have been destroyed (Bradford Sterl, pers. comm.). If the river channel is used as the border, most of the oysters would be on the Maine side (Bradford Sterl, pers. comm.).

Water quality data on the Piscataqua River is sketchy. A data report on New Hampshire and Maine River Basins compiled by the Raytheon Company in 1974 recommended field surveys be conducted on the Piscataqua basin to provide vital water quality data.

Despite the lack of quantitative data, it is known that the river is polluted with organic wastes from numerous communities upriver along the Salmon Falls River and Cocheco River, and downriver to Portsmouth and Kittery. The land along the upper Salmon Falls River is used extensively for agricultural purposes, particularly apple orchards,and considerable amounts of pesticides are probably leached into the river and carried downstream.

Industrial pollution occurs from several sources in the Berwick-South Berwick area on the Salmon Falls River, including textile factories and a tannery. The lower Piscataqua and Great Bay region is heavily industrialized, with several oil terminals, manufacturing facilities, and military installations.

Because of pollution, Maine has not allowed harvesting of Piscataqua oysters since 1947. New Hampshire permits the removal of oysters as a sport fishery.

The land immediately surrounding the oyster beds is rural woodland with scattered residential housing primarily on the Maine side. The river itself at this location is used only by recreational craft.

The Piscataqua oysters have spawned intermittently in recent years. The last period of heavy recruitment occurred in the mid 1950's, during a period of high water temperatures. Most of the oysters are therefore relatively old. The morphology of the shells, which are elongated, indicates that the oyster must continually grow upward to maintain contact with the water current, suggesting that siltation is a major limiting factor to this population. The oysters are also severely overcrowded (Bradford Sterl, pers. comm.). Thinning the population would allow faster growth and improve the health of the oysters, as well as stirring up bottom sediment and exposing dead shell as a suitable setting material for larvae.

Farley, et. al. (1972) discovered a herpes-type virus infection in Piscataqua oysters which had been transplanted to the Marsh River in 1968. Although high mortalities occurred in water temperatures of 28-30° C, mortality was low in 12-18° C water. As the water temperature in Maine seldom reaches above 20° C, the virus is not considered a significant cause of disease at normal water temperatures.

Piscataqua oysters have been used as parent stock for the New Meadows oyster culturing feasibility study in Brunswick, and as additional stock for the Marsh River population. Polluted oysters, like other shellfish, have the ability to cleanse themselves when placed in clean water, so Piscataqua oysters may be quite useful as transplants

along the coast, and as parent stock for future oyster culture efforts.

The American Oyster in the Marsh River

There has never been a quantitative study of the oyster beds in the Sheepscot estuary. The most extensive investigation was a presence-absence survey done in 1954 by the Maine Department of Sea and Shore Fisheries (Taxiarchis, Dow, and Baird, 1954). At that time, oysters were found in small numbers just above and below the falls at Sheepscot, and in greater quantities in the Marsh River and its tributary, Deer Meadow Brook (Fig. 5).

This is the northernmost natural population of oysters in the United States,and therefore is of national significance. It is also the only oyster population wholly within Maine.

Subsequent to the 1954 survey, occasional scuba dives by researchers at the Department of Marine Resources have verified the continued existence of these populations. A quantitative survey of the estuary would be desirable, to obtain an accurate figure of the number and location of oysters present. The oysters in the Sheepscot estuary are far less numerous than those in the Piscataqua, totalling perhaps 200 bushels or so.

The Marsh River drains into the Sheepscot River between Sheepscot and Wiscasset, from the east side. It is a tidal river, receiving fresh water runoff from Sherman Lake and the upper Deer Meadow Brook. The area is undeveloped - despite the fact that U.S. Route 1 passes at the southern end of the river, access to the surrounding shores is severely restricted. The shoreline along the upper reaches of the river and Deer Meadow Brook is uninhabited, and only one farm adjoins the river along the middle reach. A few houses are located near the mouth of the river. Lack of data prevents an accurate assessment of water quality. However, the Sheepscot is considered to be relatively clean river - coliform bacterial counts in the Wiscasset Harbor from 1970-1973 were not high with a median MPN/ 100 ml of less than 25 (Fourth Annual Report, Environmental Studies, Maine Yankee Atomic Power Company, Vol. 1, 1972).

The Marsh River was the site of an intense oyster fishery from 1954 to 1968, during which time over 40,000 pounds of oyster meats (about 5,300 bushels) were removed, mostly by scuba divers. As in the Piscataqua, spawning has been light during recent years, so recruitment has failed to replace loss from exploitation. To protect the population, the Maine Department of Marine Resources closed part of the river to oyster harvesting in 1968, declaring it a conservation area. The closed area includes the river reach between and south of the two railroad bridges, as well as the short tributary from Sherman Lake.

There appears to be no immediate threats to the oyster population in the Marsh River, particularly since the area is closed to oyster harvesting. The most severe limiting factor is probably siltation and resultant lack of setting substrates. Monitoring of the population would provide needed data on spawning in the river. Ricker (1969) proposed a number of biological and hydrological studies to be carried out on the river to determine

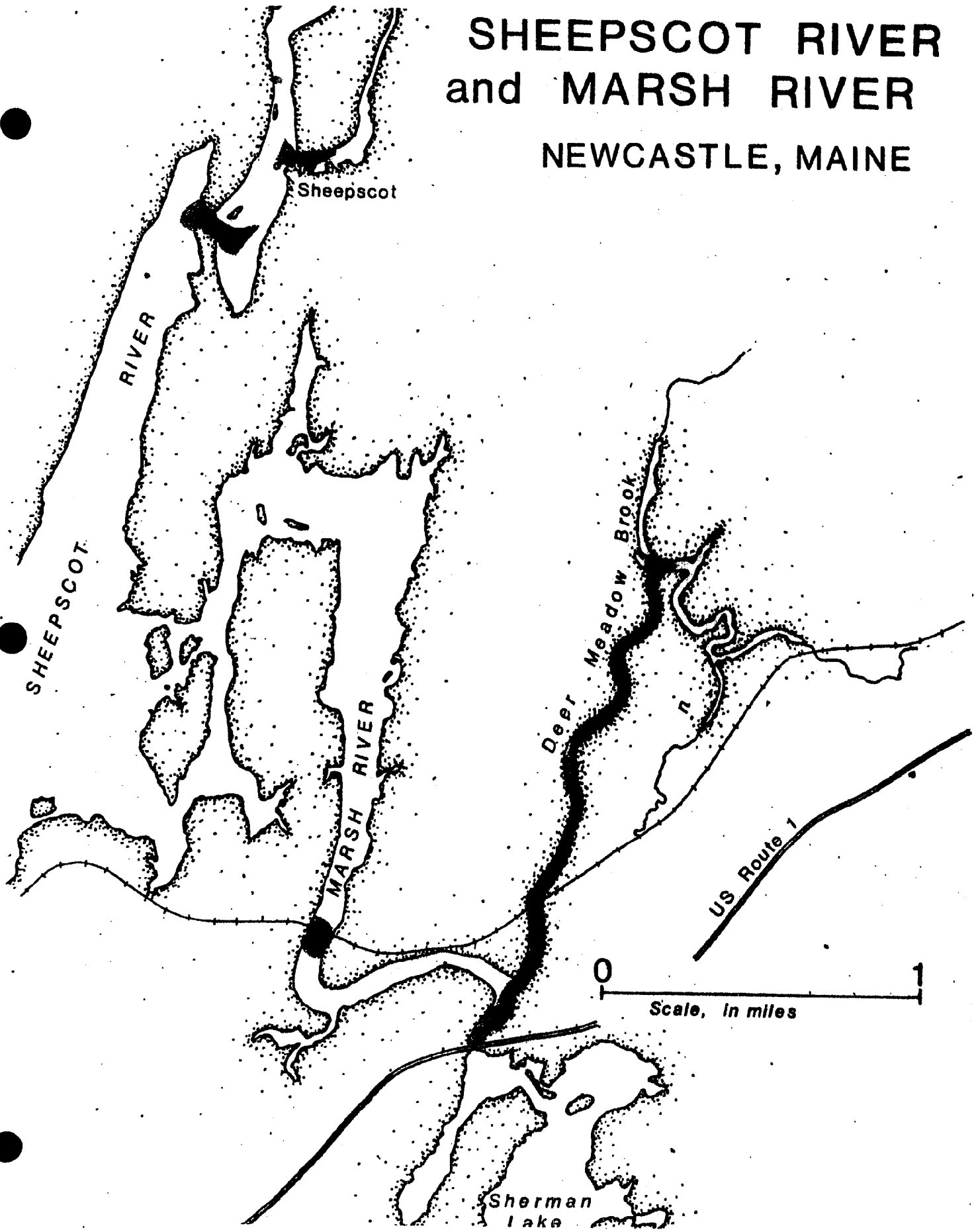

Fig. 5 The Sheepscot River and Marsh River at Newcastle, Maine. Cross-hatched areas

if the area would be suitable for impoundment. Impoundment, for a few weeks in the summer, would restrict water flow during gametogenesis, causing the temperature to rise and trigger spawning. The larvae would settle on material provided and the normal tidal water flow may then be resumed. If feasible, impoundment of the Marsh River may result in prodigious numbers of young oysters.

In 1968, oysters were transplanted from the Piscataqua River to the Marsh River, and the viral infection mentioned previously (Farley, et. al., 1972) was accidently introduced. The infection does not appear to be serious at ambient (normal) water temperature. As the infection is temperature-dependent, it is possible that the infection rate might rise somewhat in elevated temperatures of impounded water.

General Analysis of American Oyster Beds For Inclusion on the Register of Critical Areas

1. Conformance with definition contained in the Act

The Act defines critical areas as "areas containing or potentially containing plant and animal life or geological features worthy of preservation in their natural condition, or other natural features of significant scenic, scientific, or historical value." The American oyster, found in numbers in only two locations in Maine, is worthy of preservation, and its habitat meets the requirement of the definition of the Act.

2. Considerations in Registration

A. Values and qualities represented by the area (specifically including any unique or exemplary qualities of the site).

The oysters in the Piscataqua River comprise the largest beds to which the State of Maine has access, while the oysters in the Marsh River form the northernmost natural oyster population in the eastern United States, and the only substantial population wholly within Maine's jurisdiction.

B. Probable effects of uncontrolled use (specifically in relation to its intrinsic fragility).

If the oyster populations in Maine were subject to uncontrolled exploitation, the beds would probably be seriously depleted by scuba divers and draggers. Because spawning is light and intermittent, a large parent population is necessary for survival. The Piscataqua oysters, because they are polluted, would be less desirable than the Marsh River oysters, and therefore, less subject to fishing pressures.

Heavy inorganic pollution from boats or adjacent shorelands would have a

detrimental effect on oyster beds. Organic pollution, while not so detrimental to oysters, may render them inedible. Heavy boating use in constricted areas may increase siltation by erosion of the banks, thus covering the suitable firm surfaces for larval settlement of oysters. Similarly, adjacent land uses which result in an increased silt load in the water would have a serious adverse effect on the oysters.

C. Present and probable future use (specifically present and future threats of destruction).

The natural oyster beds in Maine have been closed to oyster fishing by the Maine Department of Marine Resources, and are likely to remain so for the foreseeable future. The Piscataqua oysters have been used as transplants to the New Meadows River and the Marsh River, and may in the future be used as parent stock for oyster culturing.

The Central Maine Power Company right-of-way beneath the power cables which cross the Piscataqua just south of the confluence of the Salmon Falls and Cocheco Rivers has been suggested as the site for laying a pipeline from a proposed refinery in Sanford (Document III - Pipeline; Project Description and Environmental Impact Assessment, New England Energy Company). Location of the pipeline at this point could cause serious damage to the oyster population due to dredging activity, and future management alternatives for the population would be limited. At this time, however, the refinery proposal has been at least temporarily withdrawn.

The threat of destruction to the Marsh River oyster bed from incompatible land or water uses does not appear to be great.

D. Level of significance

Maine oyster beds are of regional significance, as they are the northernmost oyster beds on the United States east coast.

E. Probable effects of registration - positive and negative (specifically including economic implications of inclusion of the area on the register).

The positive effect of registration will be to give official recognition of the importance of natural oyster beds in Maine. Hopefully, this will lead to further surveying and monitoring of the populations with proposals and implementation of management procedures to protect a valuable economic resource. The current interest in aquaculture on the Maine coast increases the importance of the natural oyster populations, as they may be used as sources for parent stock or seed (Harriman, 1964). The Marsh River population, being unpolluted, has the potential for producing market oysters, with appropriate management.

F. Management Guidelines

The natural oyster beds should remain closed until detailed management plans have been determined. The beds should be surveyed in the near future, and monitoring procedures established to detect changes in the populations. Hydrographic surveys would be useful in determining the effects of physical factors on the populations. Pollution and siltation of the areas should be avoided or abated. Ricker (1969) suggested several avenues of research on the Marsh River and its oysters which would presumably lead to a management plan for that population.

The oyster beds should be strengthened by the use of such methods as pollution abatement, impoundment, thinning, provision of setting material, dredging, bottom ploughing, or any combination of the above. This could be done by the Department of Marine Resources.

G. Owner's Attitude

Favorable attitudes towards registration are expected from the Department of Conservation, Bureau of Public Lands, which has jurisdiction over the subtidal regions of the areas, from the Department of Marine Resources and from the private landowners adjoining the areas.

Recommendations

It is recommended that the following actions be initiated by the Critical Areas Program:

1. The natural beds of the American oyster in the upper Piscataqua River and in the Marsh River should be registered as critical areas.

2. The above populations should be surveyed as soon as possible, and be monitored periodically. Hydrological surveys should be conducted and detailed management plans should be proposed and implemented to increase and strengthen the oyster populations. These activities could be done by the Department of Marine Resources.

3. Land and water uses which conflict with the maintenance and improvement of the oyster beds should be minimized.

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Appendix I The European Oyster in Boothbay Harbor

The European oyster (Ostrea edulis) (Fig. 6) is smaller than the American oyster and relatively disc-shaped. It has a natural distribution from Norway south to the Mediterranean and Black Seas.

European oysters produce up to 1,000,000 eggs per spawning, and are larviperous - that is, the eggs are fertilized internally and are incubated in the inhalant chamber of the female. As part of the larval stage is completed withing the parent oyster, the planktonic stage of the life cycle is shorter, so a far greater percentage of European oysters reach the settling stage than do American oysters.

The European oyster grows best in salinities above 23 ppt, and spawns successfully at a water temperature of 15°-16° C. These characteristics probably make the European oyster more suitable for the Maine coast than the American oyster, which requires a higher temperature for spawning and does better in lower salinities.

In October 1949, 3600 European oysters were introduced in cages in Boothbay Harbor from stock imported from the Oosterschelde in Holland. Later, in June 1954, 390 pounds of oysters were imported and added to the original stock. Welch (1963) has summarized the growth of the European oyster in the Boothbay region. Gametogenesis and spawning have taken place annually since introduction, and the range is slowly expanding. Fig. 7 shows the extent of the range in 1963.

To protect the fledgling populations, the Maine Department of Sea and Shore Fisheries in 1960 closed the Boothbay region to oystering. Dr. Herbert Hidu (pers.comm.) has indicated that the Boothbay population is an important Maine-adapted gene pool which may be of considerable importance as parent stock for culturing efforts along the coast.

Despite the importance of the population to Maine, the European oyster is not native to this state and will not be considered in the registration of critical areas.

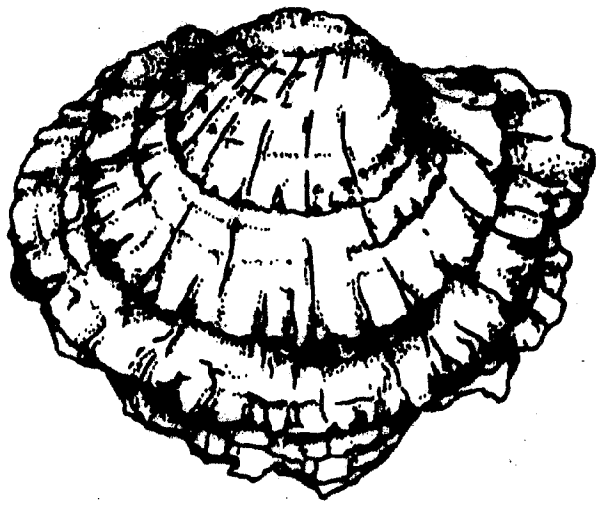


Fig. 6. The European oyster, Ostrea edulis, top view (from Galtsoff, 1964)

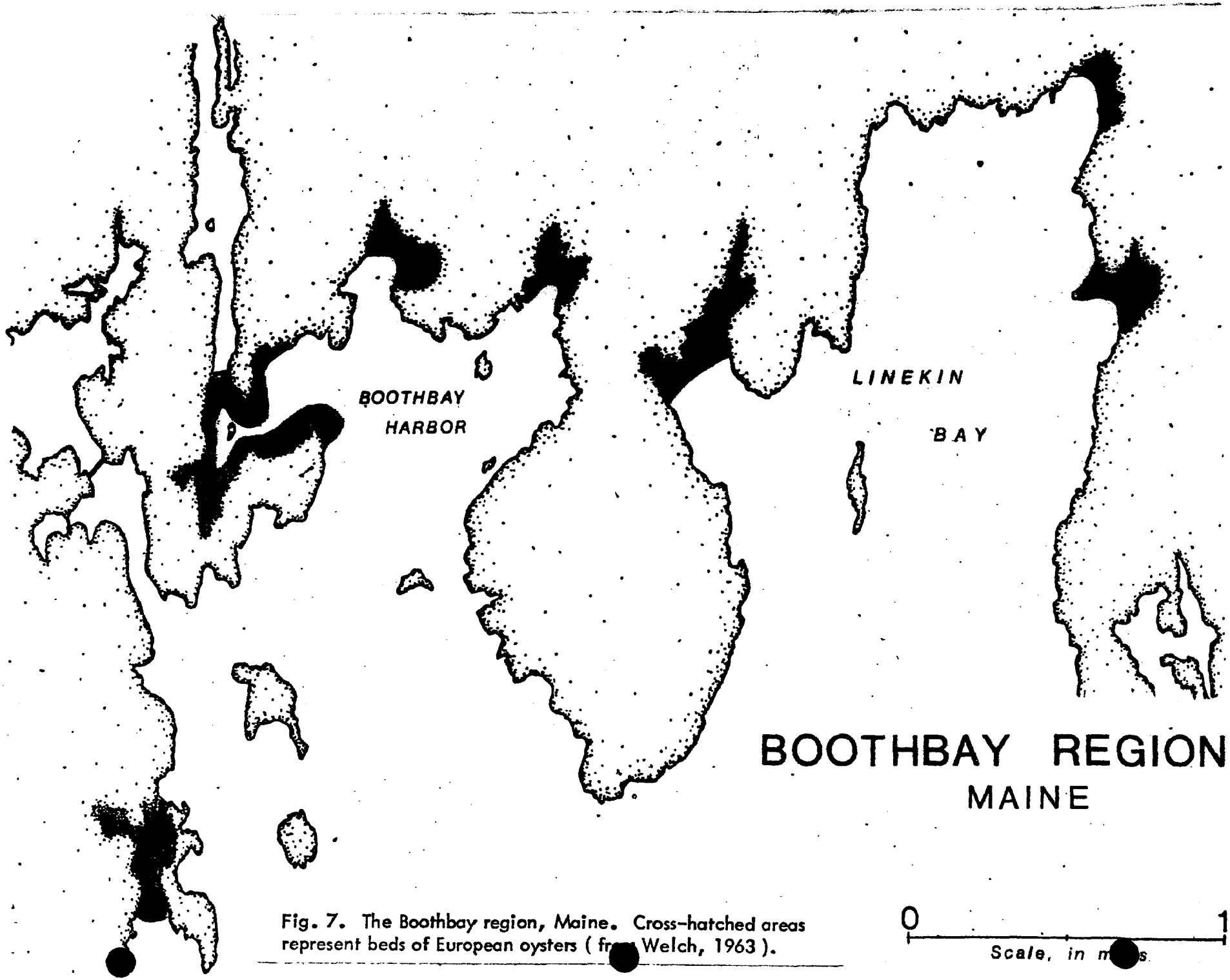


Fig. 7. The Boothbay region, Maine. Cross-hatched areas represent beds of European oysters (from Welch, 1963).

6. COASTAL ZONE MANAGEMENT MAPPING DOCUMENTS

A series of documents was also produced by staff during this period which dealt with the mapping program and use of the maps. These are included in this section.

The first of these is a draft of A Users Manual for the Maine Coastal Planning Atlas. The second is a compliation of cover sheets of a series, Fisheries and Wildlife Planning Reports, prepared for the Coastal Planning Group by the Maine Department of Inland Fish and Wildlife. These were prepared in the winter of 1974, but were omitted from the previous progress report. The last document is a Summary of Resource Information Collected for Mid-Coastal Maine as of June 1975 at the demise of the 306 program.

A USER'S MANUAL

FOR

THE MAINE COASTAL PLANNING ATLAS

7/29/75

A USER'S MANUAL

For

THE MAINE COASTAL PLANNING ATLAS

Introduction

The purpose of this manual is to provide a simple explanation of how to best use the Coastal Planning Atlas. As the major concern of this manual is to communicate basic information to groups and individuals interested in coastal planning, technical terminology is intentionally avoided. Unavoidable technical terms will be surrounded by simple non technical descriptions and sketches will be used as explanatory aids throughout the text.

The decision to divide this manual into two sections recognizes the need to make available at least two levels of atlas explanation each offering a different depth of detail and technicality. Section I offers basic introductory and summary information about the Coastal Planning Atlas. It provides a short introduction to the intended purpose, operating principles, limitations, and abilities of the Coastal Planning Atlas and summarizes the significance of the atlas content. For the atlas user requiring an in-depth level of explanation, Section II provides detailed explanation of the underlying assumptions and decisions employed in developing the Coastal Planning Atlas and serves Section I as a Technical Appendix.

A USER'S MANUAL

FOR

THE MAINE COASTAL PLANNING ATLAS

List of Contents

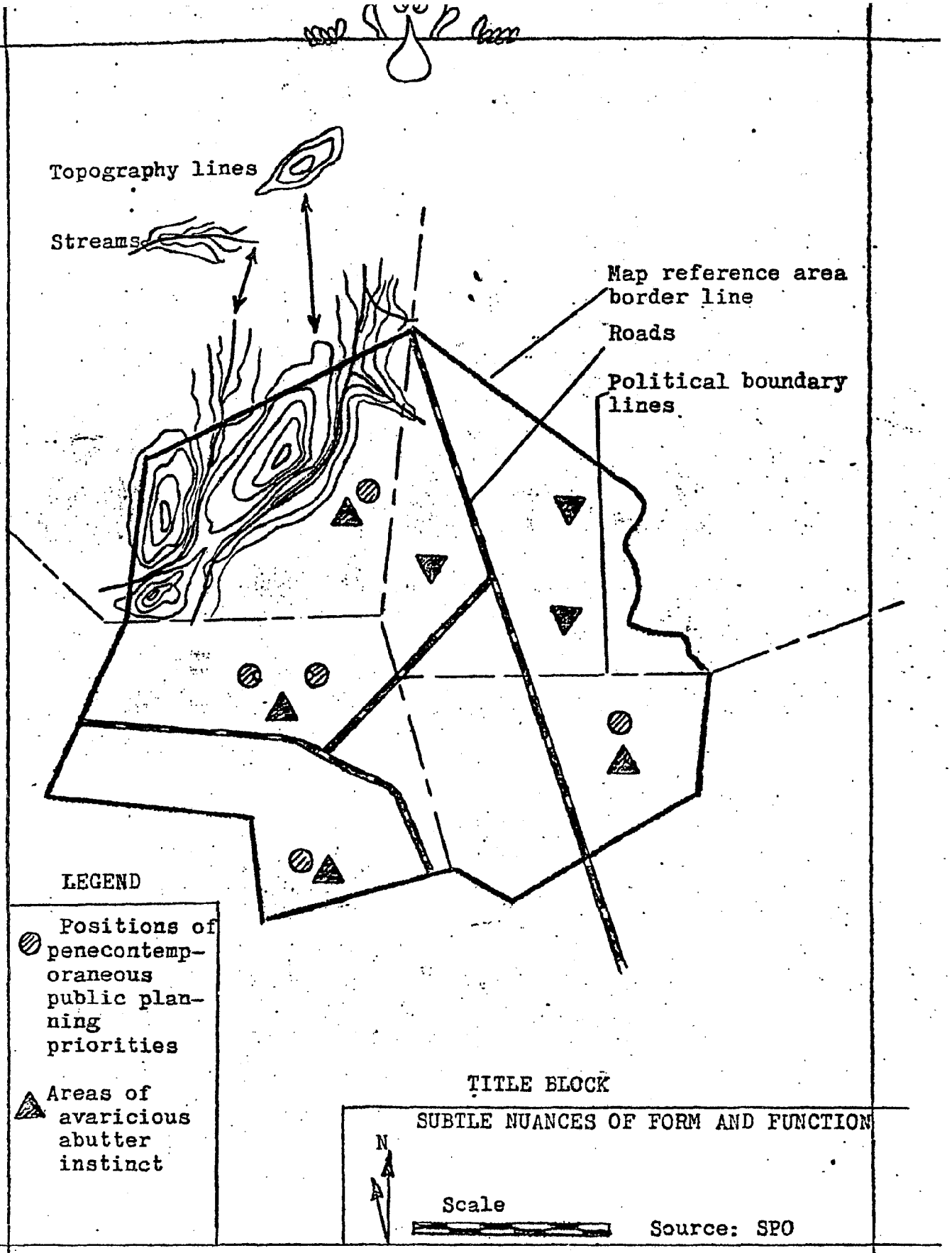
1. Intended Purpose of the Atlas

The Coastal Planning Atlas is intended to provide the user with an informed understanding of the overall problems, potentials, and priorities of coastal planning in Maine.

The atlas provides specific information useful in both general educational value and as an aid in the local processes of planning and decision making. In addition to presenting specific types of information in map form, the Coastal Planning Atlas illustrates a very useful information handling and mapping technique for application in local efforts. See 7. Overlay Maps for further discussion of this useful mapping technique and 10. Summary of Specific Atlas Uses for a follow-up discussion of the intended purpose of the atlas.

2. The Map System of Presenting Information

A good map like a good photograph is worth at least ~~1,000~~ a thousand words in describing a specific situation. As good as any map might be, it can not talk to the viewer unless the simple language of maps is first understood. The language of maps is an organized system of symbols. The following sketch (Sketch 1) illustrates and defines common map symbols and those used in the Coastal Planning Atlas.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scale

Understanding is an important first step in feeling comfortable with maps and although not a difficult task, it is a source of much confusion to many map viewers. Map scale is formally defined as : 1) A divided line on a map or chart indicating the length used to represent a larger unit of measure (as an inch to a mile) 2) a proportion between two sets of dimensions (as between those of a drawing and its original). Map scale is expressed both as an equation and a ration The Coastal Planning Atlas maps are drawn to a scale of 1" = 4,000' (expression of scale as an equation) and 1:48,000 (expression of scale as a ratio). This means that every inch measured on the map represents 4,000 real feet of distance in the area mapped. It also means that every object illustrated on the map is 48,000 times smaller than its real land surface counterpart.

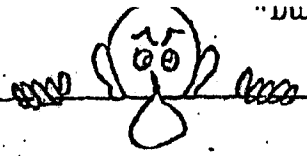
Following is a graphic demonstration of four familiar scale situations each focusing on one reference object for a comparison of varying map scales. The central reference object, a house of fixed size, is illustrated at a common house plan, site plan, town map, and regional or Coastal Atlas scale.

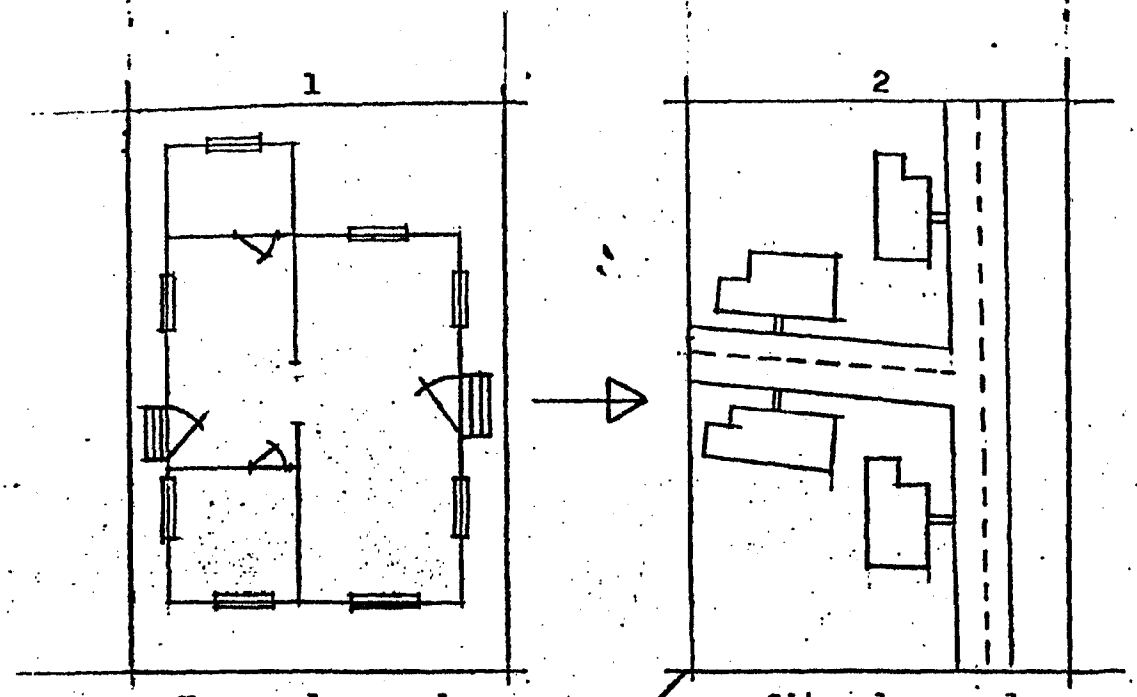
Sketch 2 Four scale situation mock ups

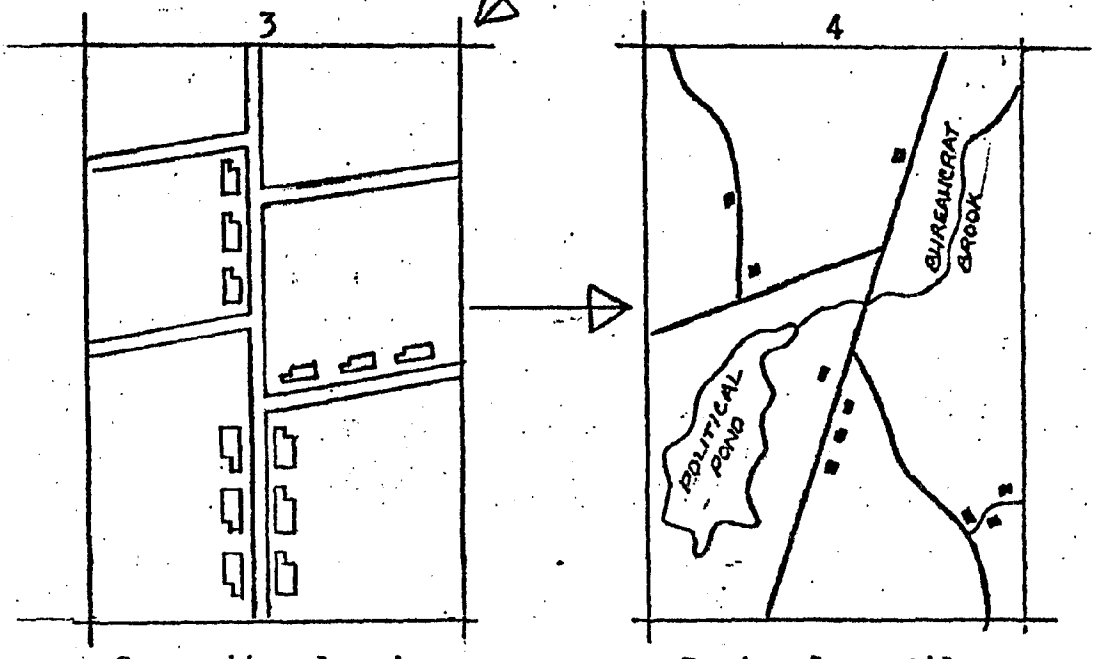
4. Understanding the Map Message

Although an understanding of the symbol language of maps and of scale relationships is a necessary first step in understanding maps and their messages, equally important is a simultaneous step taken to avoid a strong tendency toward unfounded negative assumptions about map meaning. It is often the case, especially in the instance of a map subject considered controversial, that a map viewer displays interest in only the first glimpse - indelible image of what he thinks

Sketch 2 "Dummy" Map Format







the map might be saying about his land or area of vested interest. From that point on the map and all its broader reference information is rejected and defensively discredited.

Although the Coastal Planning Atlas maps record real land and water situations and recommend the best use of these situations for overall community benefit, the fact that a specific mapped category appears adjacent to a particular parcel of land does not mean that the land owner will be directly affected by whatever is shown on the map. It does mean that a land or water situation of real significance to the entire community is located in the vicinity of the mapped category. The primary purpose of the Coastal Planning Atlas is to provide useful planning oriented information not to establish a framework for legal action. The following section of this booklet provides further explanation on this and other Atlas interpretation questions and discusses in greater detail the limitations and abilities of the Coastal Planning Atlas.

3. LIMITATIONS AND ABILITIES OF THE COASTAL PLANNING ATLAS

To produce the Coastal Planning Atlas which describes a broad range of land and water conditions throughout a large area, decisions were made early in the project planning stage which not only provided a definite direction for the project but also gave the final product a specific set of abilities and certain limitations. Inherent in the intentions and timing of the Coastal Planning Atlas are the limitations of its regional planning mapping scale of 1" = 4,000' and the availability of information during the project period.

The atlas choice of mapping a 1" = 4,000' was primarily a common sense decision to map a large (Kittery to Calais and 10 miles inland) area by subdivisions, and at a scale producing maps which were handleable in size; readable in detail; and useful for state,

the Coastal Zone (usually containing a cluster of 4 to 6 communities) could be mapped on a single sheet of paper no larger than 3' x 4'. On such a coastal zone subdivision map one average size community covers an area about 5" x 6". This is clearly not an ideal mapping scale for community planning nor was it intended to be. An ideal community planning mapping scale would be 1" = 1,000' or larger allowing the area of only one average coastal community to cover most of the 3' x 4' format. In comparison with this ideal community planning mapping scale the atlas mapping scale of 1" = 4,000' covers 16 times the land area but illustrates less detail than the community planning scale. Although mapping at a larger scale would have recorded greater detail, it was felt that time and money! was not available to gather the additional base information necessary for larger scale mapping.

The atlas limitation of mapping scale is then primarily a limitation in the amount of detail recorded in mapping. See (3. Understanding Scale) p. ___ for a graphic comparison of community planning and coastal atlas mapping scales. Although some detail defining land and water conditions relevant to community planning and individual land owner interests is unavailable at the atlas mapping scale as being below the average minimum mapable unit of 5 acres; the atlas maps can provide a significant service to local communities by locating specific sites and areas larger than 5 acres and giving a good generalized overview of many important land and water conditions in both the town and the surrounding communities. Although small regional scale mapping of large areas sacrifices ability to include a certain amount of local detail, the details recorded at the small regional scale are an accurate representation of real conditions.

The Atlas maps are most useful in their ability to locate a wide range of important and interrelated land and water conditions, present a summary of planning assets and liabilities for local consideration, and provide a strong sense of direction for local planning efforts.

Any mapping project undertaken at a specific time and for a certain project period lives with the limitations of the base information available during that period. Although good quality and consistent base information was available during the Coastal Atlas project period (_____) some mapping categories were less well served by uniformly available information and were affected by differing information bases. For example for some atlas areas within the Coastal Zone, medium intensity (medium detail) soils information was available while for other areas only low intensity (generalized) information was available. Unavoidable limitations of this nature were realized throughout the atlas project as isolated occurrences and are further described in the Technical Appendix.

4. The Atlas Maps

There are three basic map types presented in the Coastal Atlas. They are: 1. Overlay Maps entitled Development Suitability, 2. Composite Map entitled Areas of Particular Concern, and 3. Base Data or Reference Maps. In addition to the discussion of the atlas maps which follows, the reverse side of each map in the Atlas contains a basic instructive description to serve in the interpretation of that map.

(7)

The purpose of the Development Suitability maps is to determine the suitability of land and water areas to successfully accomodate three selected types of large scale development(typically anticipated in the Coastal Zone)based upon combined consideration of five significant development limiting land and water conditions. The Development Suitability maps describe the land area in the coastal zone as either (1) Suitable, (2) of Intermediate Suitability, or (3) Unsuitable for each of the three development types selected and are intended to serve local interests in an advisory capacity by providing a generalized index of land development suitability for selected large scale developments.

(2) Composite Map - Areas of Particular Concern

The purpose of the Composite Map is to identify and emphasize the importance of specific land and water situations and uses that can be characterized as development conflict areas with a public effect beyond local concern. A list of ten specific types of Areas of Particular Concern has been established and is outlined in detail in 8. Composite Map - Areas of Particular Concern Floodplains, wetlands, recreation areas and watersheds of municipal water supplies are only a few examples of areas of particular concern which can be described as development conflict areas with a public effect beyond local concern. The public effect of such areas stretches beyond local concern when the area either by location, size, or special function has an effect on more than one community or the state.

Coastal Planning Atlas. A detailed list of these maps is outlined in 9. Base Data or Reference Maps. The purpose of these maps is to record for reference a wide range of basic land and water conditions both of natural origin and man-development related. Much of the material recorded on these maps was employed as base data from which the Development Suitability and Area of Particular Concern maps were derived. The three basic map types presented in the Coastal Planning Atlas are all interrelated as information central to each map type has overlapping influence on the other two map types.

7. Overlay Maps – Development Suitability

With an increasing awareness during the last decade of the collective consequences of environmental abuse, increasing competition for the consumption of time limited resources, and the greater complexity of life; the need to deal with public planning problems in a new way became essential. This new approach focused on the central concept of endless interrelation of life based events and activities, a continuing circle of cause and effect. With the cumulative pressure of a growing population, a community could no longer regard the result of an improperly located large development as just the unfortunate disappearance of another marshland. Closeness of connection from one effect to the next brought about by continued growth and unplanned development demonstrated that as a result of the mismanaged marshland, the community experienced (1) difficulty in providing healthful drinking water, (2) increased water pollution problems, (3) increased local flood damages and (4) a decrease in the local tourist and recreation oriented economy which had been directly

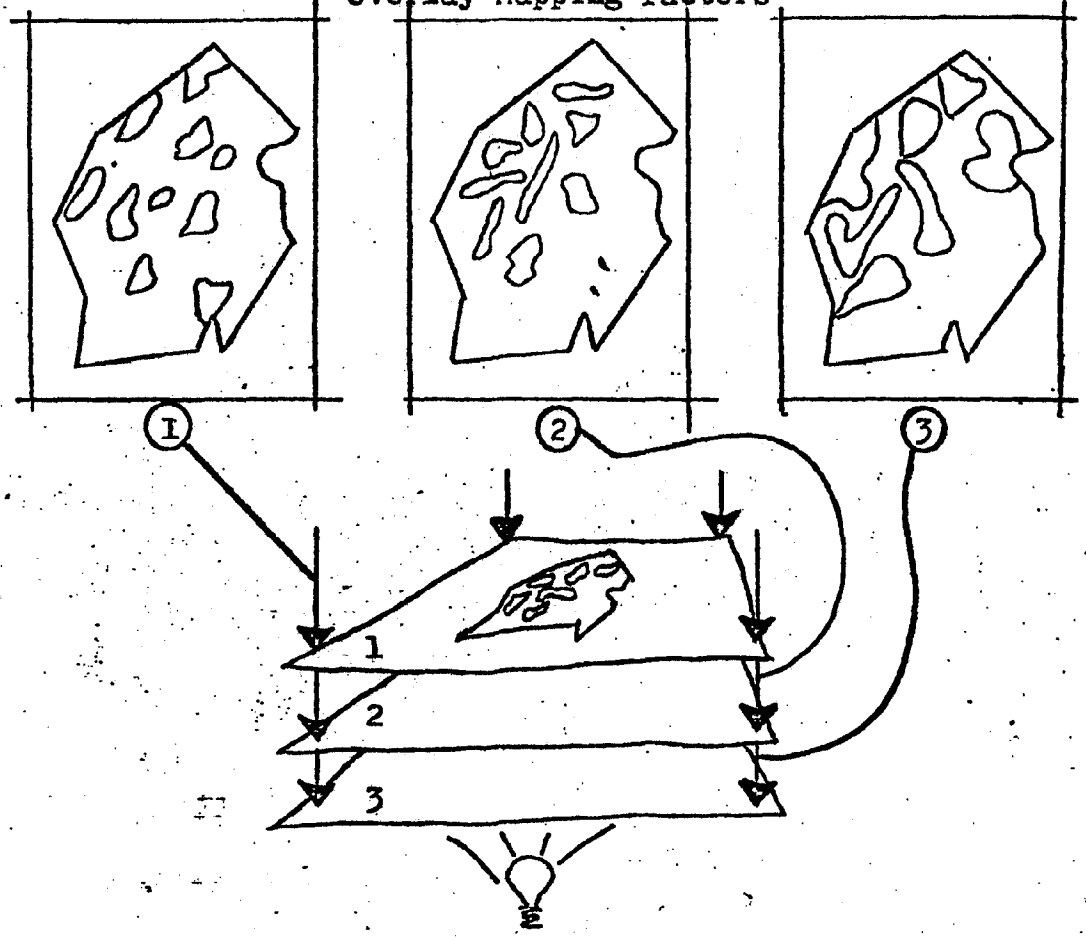
and indirectly influenced by the presence of a healthy functioning marshland. In addition to lowering the quality of life for all the participants in the degraded environment, unplanned poorly located development demonstrated the ability to be uneconomic and impractical as communities not only experienced increased costs from far reaching unanticipated damages, but also realized substantial losses from denying more profitable use of the land.

This new awareness and approach to solving public planning problems concentrated on considering the network of interrelated functions and foundations which serve to maintain an overall condition of community health and welfare. One of the methods most successfully used to identify and simultaneously consider the many factors of influence in community life is the "overlay" mapping process. Instead of considering a wide range of interrelated development limiting factors such as steep slopes, poorly drained soils, shallow bedrock, and the presence of special hazards or conflict areas; separately and on individual maps each separately mapped factor is combined with the other development limiting factors by laying each map on top of the other maps over a lighted surface to identify adjacent and overlapping factors. See Sketch 3 for a graphic demonstration of this process. In this way, any given land area can be described as to which development limiting factors, if any, exist in that location and in what combination and concentration.

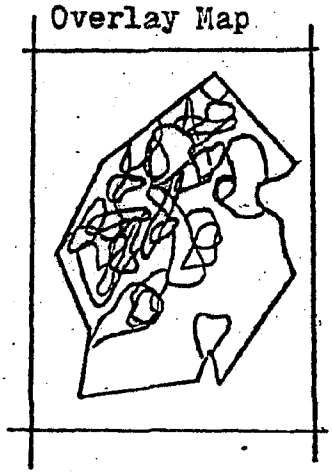
Looking at one or two development limiting factors is rarely enough to accomplish optimum site location and effective land planning. Land and water conditions which limit development most often occur in combination with other similar conditions and are adjacent or

overlapping in location. For example, the land area immediately adjacent to the coastal shoreline is commonly characterized by a concentration of development limiting conditions. Shoreline property often has steep slopes, poorly drained and highly erodable soils, shallow depth to bedrock, heavy woodland cover, presence of wetlands and wildlife habitats, scenic and recreation areas, and flooding hazards. These conditions occur as a combination of factors either in full overlap (on top of each other), partial overlap, or adjacent to one another. The usefulness of the overlay mapping process is measured in its flexible ability to consider not only a great combination of interrelated factors, but also any limited amount of selected factors which may be relevant to the special interests of any individual or organization.

Overlay Mapping Factors



Overlay Map



The development activities of major concern identified in the Coastal Planning Atlas and listed below have been selected from a broad range of possible development activities because they represent activities which most typically have a large scale, high intensity, and far reaching impact upon not only immediate but also surrounding areas. They are:

1. Construction of large buildings such as industrial plants, warehouses, port facilities, power plants, commercial complexes, office building, shopping centers, and other similar types of development.
2. Large residential developments or subdivisions with septic sewage disposal.
3. Large residential developments or subdivisions with sewage collection systems.

The three categories of Development Suitability (Suitable, Intermediate Suitability, and Unsuitable)are derived directly from the "overlay" mapping process and most appropriately applied to each of the three development activities of major concern. The suitability classifications in any specific area are based on the presence or absence of varying combinations of five development limiting land and water conditions which are listed below.

1. Soil conditions
2. Surficial geologic conditions
3. Slope conditions
4. Presence or absence of hazards
5. Presence or absence of potential conflicts between development activity and significant public values.

development suitability classification means.

Areas designated as being "suitable" for a particular activity of major concern have soils and geologic conditions which would allow the activity to be conducted an a customary manner without excessive costs, ground or surface water pollution, excessive maintenance, and hazards to human safety. Further, areas which are "suitable" are characterized by the lack of conflicts between the development activity and other uses or values of more than local concern.

Areas designated as being of"intermediate suitability" have soils or geologic conditions which are less suitable for the development activity under consideration than those referred to above but whose limitations can be overcome by moderate investments in corrective measures and engineering solutions ~~to problems.~~ These areas are also characterized by a lack of hazards to human safety and conflicts between the development activity and other uses or values of more than local concern.

Areas designated as being " Unsuitable" for a particular activity either have soils or geologic conditions which would require excessive investments in corrective measures and engineering solutions to problems, or are areas where there are conflicts between the development activity and hazards, other uses, or values of more than local significance. In the case of unsuitable soils or geologic conditions, if development were carried out in the customary manner; ground or surface water pollution, or excessive construction, maintenance, and repair costs would be likely to result.

A classification of development unsuitability in any given area means only that in that specific area one or more of the three large scale development activities of major concern would have a detrimental impact on the immediate and surrounding area. A classification of development unsuitability does not mean that other forms of less intense development could not occur in that area without detrimental impact. A resident of an area mapped as unsuitable for large scale residential development with septic sewage disposal should not assume that his septic system which has worked well for years must be eliminated. Once again, the classification refers only to the unsuitability of large scale residential developments served by septic systems. A primary concern in such a situation may be the mass contamination of ground water supplies required to supply or recharge the local community system. The isolated individual septic system in the area mapped as unsuitable may have a minimal influence on local ground water with an effect that is not readily apparent to the owner, but the effect of many similar systems would be disastrously degrading to community water resources.

3. Composite Map - Areas of Particular Concern

The Composite Map identifies and emphasizes the importance of ten broad area"types" where more than local interests are frequently and particularly concerned with use of the area. Following is an outline list of the ten area "types" and their specific subdivisions. From a quick scan of this outline, it should be apparent that a given land area could qualify for classification in one or more of these ten area types. For example a recreational beach could also be in (1) a floodplain; (2) an area of natural, scenic, scientific, cultural, historic, and prehistoric significance; (3) a shoreland defined by state law and (4) an ecologically sensitive area.

Areas chosen as Areas of Particular Concern typically transfer their effect for beyond their immediate physical limits. For example, a large sandy ocean beach with high recreational potential although located in only one small section of Maine's coast is of interest to potential users from a much larger area. Similarly the health and function of one wetland within one community may be critically interconnected with the surface or ground water supply system of neighboring communities.

AREAS OF PARTICULAR CONCERN

I. Hazard Areas:
   1. Floodplains
   2. Other similar areas

II. Areas of natural, scenic, scientific, cultural, historic, and prehistoric significance.

III. Areas where development affects the public and which are under intense development pressure.
   1. Shoreland areas as defined in state law.
   2. Areas within 250 feet of highways.
   3. Other similar areas

IV. Areas with economically valuable or potentially valuable natural resources:
   1. Areas with valuable or potentially valuable mineral resources.
   2. Existing and potential aquaculture sites.
   3. Existing and potential agricultural sites.
   4. Areas which are intensively managed for and highly productive of timber.

V. Ecologically sensitive areas:
   1. Wetlands.
   2. Beach and dune systems
   3. Shoreland areas especially vulnerable to erosion.
   4. Other similar areas

VI. Areas which offer significant recreational opportunities:
   1. Significant beaches.
   2. Heavily used footpaths.
   3. Heavily used canoe routes.
   4. Other similar areas

VII. Significant scenic areas:
   1. Significant scenic viewpoint and foreground components of the views.
   2. Significant scenic or aesthetic areas or sites.

VIII. Routes of public access.

IX. Important habitats:
   1. Deer wintering areas.
   2. Waterfowl nesting areas
   3. Waterfowl overwintering are
   4. Clam flats
   5. Worm flats
   6. Lobster habitat
   7. Scallop beds
   8. Stream used by anadromous fish (salmon, alewives, smelt
   9. Lakes and ponds of high valu for sport fishing
   10. Other similar areas

X. Watersheds of municipal water supplies.

9. Base Data or Reference Maps

Base Data or Reference Maps are exactly what their map type title implies. Their primary purpose is to record a variety of data to be used as reference material. They are presented in the Coastal Planning Atlas as individual informational resources and as a demonstration of the base data which has been incorporated in the other two Atlas map types, Overlay and Composite Maps. Following is a list of the base data maps included in the Coastal Planning Atlas

1. Topography and Culture
2. Groundwater (3 maps)
3. Surficial Geology
4. Bedrock Geology
5. Marine Environments
6. Water Classification and Watersheds
7. Wildlife Fish and Marine Resources [2 maps]
8. Land Use I, Cover Types
9. Land Use II, Facilities and Activities
10. General Soils

In compiling the information to produce the Base Data Maps, the State Planning Office enjoyed the cooperation of a wide range of State and Federal agencies and municipal organizations and officials. The information presented on these maps would be most useful to municipalities, organizations, or individuals intending to inventory a wide range of existing land and water conditions for land planning purposes.

10. Summary of Specific Atlas Uses

In 1. Intended Purpose of the Atlas, the word "overall" describes the level of problems and priorities identified in the Atlas. In 5. Limitations and Abilities of the Coastal Planning Atlas, the limitation of the small atlas mapping scale is fully discussed and further identifies the most appropriate level of atlas use. Best use of the atlas maps, then, can be made in situations in which the questions and conditions are at a level of detail and scale similar to the atlas maps.

From a land planning perspective, the atlas maps are most useful in providing preliminary development location information. For example, a location for any large scale development which avoids costly consequences to the community and undesirable impact on the land can be preliminarily determined from use of the atlas maps. This site location stage of planning occurs before any detailed information is developed within any one site. Although the atlas maps are very useful to determine favorable locations for a large area land use, they are not capable of providing the kind of site engineering information required to properly postion a single structure on a peice of land.

With this primary function of most appropriately locating large scale development, the atlas offers valuable planning information to both public and private interests. The large land owner with a desire to develop his land, a community looking for a dump or school site, private industry seeking a location in coastal Maine, a public utility looking for a new generating site, and the State of Maine

seeking planning direction for future development can all gain valuable guidance from using the Coastal Planning Atlas.

In addition to the uses derived from the information presented on the maps, the atlas demonstrates a method of mapping useful as a model for similar mapping efforts at any scale. The basic overlay mapping technique offers the same advantage of flexible and comprehensive coverage of a wide range of conditions at the community planning and site planning scale of mapping.

SECTION II TECHNICAL APPENDIX

The purpose of Section II is to provide a more technical and more detailed description of the Atlas maps than is included in Section 1. This technical appendix deals not only with a greater depth of description than is available in Section 1 but also focuses on the underlying assumptions and background information employed in dev developing the coastal atlas. Section II is divided into the following four parts:

1. Overlay maps - Development Suitability
2. Composite Map - Areas of Particular Concern
3. Base Data or Reference Maps
4. Supplemental Information Gathered by the Coastal Planning Group

Unless otherwise stated the Coastal Atlas Maps are drawn to the uniform mapping space of 1" = 4000' or 1:48,000. Although additional information has been gathered by the State Planning Department beyond the point of atlas publication, the information contained in the atlas was considered to be the information most useful to the public in making land use planning decisions.

1. OVERLAY MAPS - DEVELOPMENT SUITABILITY

Part one of the technical appendix, Overlay Maps - Development Suitability, contains the following subjects organized as listed below:

(1) General Criteria Used to Determine Suitability of Land for Large Scale Development

(2) Areas of Particular Concern as They Affect Development Suitability

(3) Land Suitability for Subdivisions Using Septic Tank Sewate Disposal

(4) Land Suitability for Subdivisions with Sewage Collection Systems

(5) Land Suitability for Large Buildings

(6) Sources of Information

(1) General Criteria Used to Determine Suitability of Land for Large Scale Development

In reference to three categories of large scale development, the criteria being used to determine land suitability are; the degree of scope of the land surface, the type and character of the soil, surficial geologic conditions, and the presence or absence of conflicts as indicated by areas of particular concern. In general, land which is steeply sloping, has poorly drained or highly erodable soil, has a shallow depth to bedrock and features specific areas of particular concern is unsuitable for most types of large scale development. The degree to which these conditions are present or absent on the land can be used as an index of the relative suitability of the land to accomodate large scale development. The three types of large scale development selected for inclusion in the Atlas Development Suitability section are:

1. large residential developments or subdivisions using septic sewage disposal
2. large residential developments or subdivisions with sewage collection systems.
3. construction of large buildings such as industrial plants, warehouses, port facilities, power plants, commercial complexes, office buildings, shopping centers and other similar types of development.

(2) Areas of Particular Concern as they Affect Development Suitability

In addition to slope, soil and surfical geologic conditions; the presence or absence of specific areas of particular concern combine to determine the suitability of land to accomodate each of the three large scale development types. These specific areas are listed below with the reasons that their presence adversely affects large scale development.

1. Floodplains - Development should not occur where floods may cause injury or

destruction of property.

2. Areas of Natural, Scientific, Cultural, Historic or Prehistoric Significance - Development of such areas is apt to present severe problems of conflicting values. Unless specific development plans account for these values, such areas are generally unsuitable.

3. Areas of Valuable or Potentially Valuable Mineral Resources - Existence of mineral deposits as they are defined on Page ( ) can have significant implications for large-scale development on the site; the development may be disrupted by mineral excavation or the minerals may have to go unexploited because of the existence of such a development.

4. Existing and Potential Agricultural Sites - Land areas which are suited for the production of food crops should not be developed as long as suitable alternative sites are available.

5. Areas which are Intensively Managed for and Highly Productive of Timber - Successful production of lumber and pulp should not be preempted by development as long as suitable alternative development sites are available.

6. Wetlands - Wetlands are physically unsuitable for development because of flooding problems and low bearing capacity. Filling and developing wetlands will destroy their value for primary production, flood-water retention and wild-life habitat.

7. Beach and Dune Systems - The recreational value and physical stability of beach and dune systems are threatened by the excavations, pavement and general activity associated with large-scale development.

8. Heavily Used Footpaths - Large-scale development on heavily used footpaths is likely to stir up considerable resentment on the part of recreation and conservation interests. Unless specific development plans accommodate these interests, such

footpath areas should be considered unsuitable for development.

9. Important Habitats - The needs of valuable wildlife should be considered as well as the needs of man in the land use decision making process. The habitat areas which come under this Area of Particular Concern category are areas which support sizable numbers of commercially valuable species or which are critical habitat areas for outstanding species of Maine wildlife. Since alternative development sites can normally be found, these wildlife havitat areas are considered unsuitable for large-scale development as defined previously. However, since this suitability process is limited to land areas, only the land area habitats are considered; deer wintering areas and bird nesting and protection areas.

3. Land Suitability for Subdivisions Using Septic Tank Sewage Disposal

For the purposes of this suitability analysis, the type of subdivision under consideration is a large residential development of single family houses with basements, encompassing 20 acres or more comprised of relatively small lots - one-half to one acre average size. The type of septic tank system is a standard trench-drainage field system, constructed in conformance with Section 9.6 of the Maine Plumbing Code.[6]

Slopes considerations; The Maine State Plumbing Code requires that standard septic tank-trench sewage disposal systems be built on surface slopes of 15 percent or less.[7] For the purposes of the land capability analysis, all land areas with slopes greater than 15 percent are unsuitable for development of subdivisions with septic tank sewage disposal.' Land areas with slopes of less than 15 percent have suitable slope conditions for such development.

6 State of Maine Plumbing Code, Part 11 - Private Sewerage Disposal Regulations, July, 1974

7 Ibid - p.19.

Surficial Geology and Soils Considerations; Soil suitability for subdivisions with septic tanks is determined by the soils ratings of the Soil Suitability Guide. The Soil Guide suitability ratings used were those for septic sewage disposal and houses with basements. For each soil type the suitability rating was the highest rating achieved for both houses and septic sewage disposal. For example, if a particular soil is rated "good" (suitable) for construction of houses and "poor" (intermediate) for septic sewage disposal, then that soil is rated as of intermediate suitability for subdivisions with septic tanks.

> "The suitability ratings for septic sewage disposal apply to soils in which septic systems are in use continuously. Additional emphasis has been given to the environmental hazards of sewage disposal on rapidly permeable soils."

> "The following factors are used to determine the ratings: drainage, depth to bedrock, rooting depth, slope, flooding, permeability, surface stoniness, and surface rockiness."[8]

The "ratings (for houses) are intended for single family dwellings or other structures with similar foundation requirements and that are three stories or less."

> "Ratings are determined using the following factors: potential frost action, drainage, slope, depth to bedrock, flooding, surface stoniness, surface rockiness, and textural stability classes."[9]

The suitability ratings of land areas for subdivisions with septic sewage disposal is further refined by considering the possible vulnerability of groundwater and aquifer recharge areas. Rapidly permeable surficial materials and surficial features which might constitute

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[8]Soil Suitability Guide, p. 2-A

[9]Ibid, p. 2-B

groundwater aquifers could become contaminated by ground discharge of domestic sewage. These features include large moraines, eskers, kames, kame terraces, and glacial outwash deposits. In many instances, the existence of these features is reflected by course textured, sandy outwash soils which are rated "unsuitable" for septic tank sewage disposal. However, in some cases these features are not reflected in the soil units. For this reason, all such potential aquifer recharge areas are rated as no better than intermediate suitability for septic sewage disposal.

For example, if the soils map indicates that a particular site has soil conditions which are suitable for a subdivision with septic tanks, but surficial data indicates the presence of an esker system, the soil at that site is rated intermediate for such a subdivision.

In areas such as Knox County where detailed surficial geology data exists, land areas with very thin soil cover have been identified. In most cases, these designations correspond with shallow soil units as mapped on the Soil Conservation Service maps. However, these shallow soil areas have been used as a check on the soils data. All such areas are rated as "unsuitable" for development of subdivisions because available information indicates that soils are too shallow for construction of numerous houses with basements.

Areas of Particular Concern; Land areas which are Areas of Particular Concern as explained on pages and are unsuitable for development of subdivisions with septic tanks.

(4) ~~Specific Criteria~~ - Land Suitability for Subdivisions with Sewage Collection Systems - This suitability analysis is conducted for large residential subdivisions encompassing more than 20 acres, and comprised of single family houses with basements on lots about one-half to one acre in size. This suitability analysis considers only subdivisions which are served by a sewer system.

Slopes Considerations; The suitability breakdown of slopes is the same as that used in determining land suitability for subdivisions with septic tank sewage disposal (see above); land areas with slopes of less than 15 percent have suitable slope conditions for construction of subdivisions with sewage collection systems, and all land areas with slopes which are steeper than 15 percent are classified as unsuitable for such development.

Soil and Surficial Geologic Conditions; Soil suitability for subdivisions with sewage collection systems was essentially determined from the published Soils Conservation Service suitability ratings for houses with basements and for pipe and sewer lines. The rating criteria for houses were explained on Page . The suitability ratings for pipes have been determined for the "installation and maintenance of underground pipes and sewer lines. It is assumed the installation is below the frost line. Corrosivity is not considered in the rating.

"The following factors are used to formulate the ratings: drainage, slope, depth to bedrock, textural stability classes, flooding, surface stoniness, and surface rockiness."[10] Here the suitability rating of a given soil for subdivisions with sewage collections system is generally the best rating which that soil achieves for both house construction and ~~installation~~ SITING, and maintenance of pipes. One series of exceptions was made: Several of the sandy outwash soils types are rated in the Soil Suitability Guide as "very poor" for installation and maintenance of underground pipes and sewer lines, but are rated "poor," "fair," or "good" for construction and maintenance of houses with basements. These soils are:

Colton soils
Colton with inclusions of Duane
Hinckley with inclusions of Sudbury
Hinckley with inclusions of Windsor
Sudbury with inclusions of Walpole
Adams with inclusions of Colton
Windsor with inclusions of Deerfield
Agawam with inclusions of Ninigret
Ninigret with inclusions of Walpole

[10] Soil Suitability Guide, p. 2-B

Persons who are knowledgeable as to the techniques and equipment used in installing and maintaining pipe lines were contacted, and their opinions essentially were that these soils are relatively well suited for installation and maintenance of sewer and water lines. For this reason, all land areas with Colton, Hinckley, Sudbury, Adams, Windsor or Agawam soils have been rated as having suitable soil for subdivisions with sewage collection. Areas with Ninigret soils (which the Suitability Guide indicates as "poor" for houses with basements) have been rated as having intermediate soil conditions for subdivisions with sewage collection systems. However, one point should be emphasized: The people who designed the Soil Suitability Guide rated these outwash soils as "very poor" for installation of pipes because of the tendency of these soils to slough along walls of trenches. This situation might create problems for digging operations and even create a serious hazard where soil could fall in on people who are working in the trenches. Trench boxes or other shoring material should be used to prevent these problems from occurring during installation of pipes in outwash soils.

Because subdivisions with sewage collection systems do not involve direct discharge of household sewage into the ground, we have not considered potential surficial aquifer areas as unsuitable for this type of development. However, such subdivisions do normally involve houses with basements (at least this is normally the case in Maine). Therefore, in those coastal areas for which detailed surficial data exists, (Knox County) shallow bedrock areas as delineated on the surficial maps have been designated as unsuitable for this kind of development.

Areas of Particular Concern; Land areas which are Areas of Particular Concern as explained on pages and are unsuitable for development of subdivisions with sewage collection systems.

(5) Land Suitability for Large Buildings

This analysis considers the suitability of land areas "for construction and maintenance of industrial and commercial buildings without basements, and whose foundation requirements do not exceed those of ordinary three-story buildings."[11] This category of building would include "Mammoth Mart"- type shopping centers and similar commercial and industrial facilities but does not refer to the skyscraper scale of building.

Slopes Considerations; The slope suitabilities used here are those which have been adopted for use by the USDA Soil Conservation Service and the Maine Soil and Water Conservation Commission: All land areas with slopes that are steeper than 15 percent are designated as unsuitable for development of large buildings. All land areas with slopes of from 8 percent to 15 percent have slopes conditions which are of intermediate suitability for large buildings. All areas with slopes of less than 15 percent have suitable slopes for construction of large buildings.

Soil and Surficial Geologic Considerations - Soil suitability for large buildings was determined from the soil suitability ratings for commercial buildings - less than three-stories, as published in the Soil Suitability Guide. Physical characteristics of soil types are used to determine their suitability for large buildings according to the following factors: slope, drainage, potential frost action, depth to bedrock, flooding, surface stoniness, surface rockiness, and textural stability classes.

No additional surficial geologic factors were considered in determining suitability for large buildings.

Areas of Particular Concern - As mentioned on Page the following areas of particular concern are designated as unsuitable for development of large buildings:

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11 Soil Suitability Guide, p. 11.

Floodplains

Areas of natural, scientific, cultural, historic or prehistoric significance

Areas of valuable or potentially valuable mineral resources

Areas which are intensively managed for and highly productive of timber

Existing or potential agricultural sites

Wetlands

Beach and dune systems

Heavily used footpaths

and Important Habitats

(6) Sources of Information

The criteria which are being used to determfne land suitability for large scale developments are: the degree of slope of the land surface, the type and characteristics of soil, surficial geological conditions and materials, and the presence or absence of conflicts as indicated by "Areas of Particular Concern."

The slope characteristics of the land were determined from two sources of information: (1) USGS topo sheets indicate land elevation using topographic contour lines. The distance between contours on these maps indicates the degree of slope at a given point. This method was used to map slope conditions for the entire study area at the atlas map scale of 1:48,000. Five categories of slope were mapped: 0-3%, 3-8%, 8-15%, 15-25%, and 25%. (2) Soils maps which were produced for the coastal plan by the USDA Soil Conservation indicate slope conditions as well as soil materials. Both sources of slopes information differ in detail of coverage from area to area. In some areas of the coast, US GS maps were produced quite recently, using very reliable equipment. Slopes information generated from these maps can be expected to be quite accurate. This is generally the case in the area from Brunswick to Rockland. In other areas of the coast (most notably the Cherryfield area of Washington County) topographic maps were made before sophisticated measuring and mapping tools were available.

Such maps as the Cherryfield quadrangle are therefore notoriously inaccurate and unusable for computing slopes.

On the other hand, slopes information which is generated in the soils mapping process is quite accurate for those coastal towns which have been mapped using medium intensity soils mapping techniques. Within coastal areas 1-6, Brunswick to Gouldsboro, medium intensity soil survey methods have been used for complete mapping in the following towns:

Area 1

- Belfast
- Searsport
- Stockton Springs
- Prospect
- Verona

Area 2

- Camden
- Lincolnville
- Owls Head
- Rockland
- Rockport
- St. George
- South Thomaston
- Warren

Area 3

- Brooklin
- Sedgwick
- Stonington

Area 4

- Gouldsboro
- Hancock
- Lamoine
- Sorrento
- Tremont
- Trenton
- Winter Harbor
- T9 SD

Area 5

- Alna
- Damariscotta
- Dresden
- Edgecomb
- Monhegan
- Newcastle
- Nobleboro
- South Bristol
- Southport
- Waldoboro
- Wiscasset

Area 6

All towns

Within the remaining towns, generalized soil survey methods were used and slopes data is less reliable.

Therefore, in each area of the coast we have used the slopes data which is most reliable - that computed from the USGS maps or the slopes data from the soils mapping process. In areas where both sources of data are equally reliable we have used both in order to ensure that steep land areas are not designated as being suitable for development. Within coastal areas 1-6, slopes data from USGS maps was used to determine land suitability in areas 1-4. Both sources were used in areas 5-6.

Soils data for this suitability analysis process has been provided by the generalized soils mapping program being conducted for the coastal plan by the U. S. Department of Agriculture Soil Conservation Service. Generalized data has been used because of the scale of inventory work and mapping (1:48,000) used in the CZM program and because gaps in the medium intensity soil survey coverage must be filled in a relatively short period of time. Generalized mapping was conducted by SCS in those towns in which little or no medium intensity data is available (see list above on page). In those towns with complete medium intensity coverage, soil units were aggregated to conform with the general soils data. As a result, the soils associations which have been used in the mapping process are the following:

Alluvial Soils

Podunk - Ondawa soils
Podunk - Rumney soils
Rumney - Saco soils
Saco - Organic soils
Winooski - Hadley soils
Winooski - Limerick soils
Limerick - Saco soils
Organic soils
Tidal marsh
Coastal beach
Dune land

Glacial Tills

Hollis - Charlton soils, 3 - 15% slopes
Hollis - Charlton soils, 15 - 25% slopes

Hollis - Charlton soils, rocky phase, 0-15% slopes
Hollis - Charlton soils, rocky phase, 15 - 45% slopes

Hollis - Paxton soils, 0 - 15% slopes
Hollis - Paxton soils, 15 - 25% slopes

Hollis - Paxton soils, rocky phase, 0 - 15% slopes
Hollis - Paxton soils, rocky phase, 15 - 45% slopes

Hollis - Buxton - Scantic soils, 0 - 15% slopes
Hollis - Buxton - Scantic soils, 15 - 30% slopes

Hollis soils, rocky phase - Rock land, 0 - 45% slopes
Hollis - Sutton soils, rocky phase, 0 - 15% slopes

Charlton - Sutton soils, 0 - 8% slopes
Charlton - Sutton soils, 8 - 15% slopes

Hollis - Woodbridge soils, rocky phase, 0 - 15% slopes

Charlton - Sutton soils, stony phase, 0 - 8% slopes
Charlton - Sutton soils, stony phase, 8 - 15% slopes
Charlton - Hollis soils, 15 - 25% slopes
Charlton - Hollis soils, stony phase, 15 - 25% slopes

Sutton - Charlton soils, 3 - 15% slopes
Sutton - Charlton soils, stony phase, 3 - 15% slopes

Sutton - Leicester soils, 0 - 8% slopes
Sutton - Leicester soils, stony phase, 0 -8% slopes

Sutton - Ridgebury soils, 0 - 8% slopes
Sutton - Ridgebury soils, stony phase, 0 - 8% slopes

Leicester - Whitman soils, 0 - 8% slopes
Leicester - Whitman soils, stony phase, 0 - 8% slopes

Paxton - Woodbridge soils, 3 - 8% slopes
Paxton - Woodbridge soils, 8 - 15% slopes
Paxton - Woodbridge soils, stony phase, 3 - 15% slopes

Glacial Till

Paxton - Hollis soils, 8 - 15% slopes
Paxton - Hollis soils, 15 - 25% slopes

Paxton - Hollis soils, stony phase, 15 - 30% slopes

Woodbridge - Paxton soils, 3 -15% slopes
Woodbridge - Paxton soils, stony phase, 3 - 15% slopes

Woodbridge - Ridgebury soils, 0 - 8% slopes
Woodbridge - Ridgebury soils, stony phase, 0 - 8% slopes

Ridgebury - Woodbridge soils, 0 - 8% slopes
Ridgebury - Woodbridge soils, stony phase, 0 - 8% slopes

Lyman - Paxton soils, 3 - 15% slopes
Lyman - Paxton, rocky phase, 3 - 15% slopes

Lyman - Marlow soils, 3 - 15% slopes

Lyman - Paxton soils, rocky phase, 15 - 45% slopes

Lyman - Marlow soils, rocky phase, 3 - 15% slopes
Lyman - Marlow soils, rocky phase, 15 - 45% slopes

Lyman - Berkshire soils, 3 - 15% slopes

Lyman-Berkshire soils, rocky phase, 0 - 15% slopes
Lyman - Berkshire soils, rocky phase, 15 - 45% slopes

Lyman - Buxton - Scantic soils, 3 - 15% slopes

Rock land - Lyman soils, rocky phase, 3-45% slopes
Rock land - Hollis soils, rocky phase, 3 - 45% slopes

Marlow - Peru soils, 3 - 8% slopes
Marlow - Peru soils, 8 - 15% slopes
Marlow - Peru soils, stony phase, 3 - 15% slopes

Marlow - Lyman soils, 3 - 15% slopes
Marlow - Lyman soils, 15 - 25% slopes

Marlow - Lyman soils, stony phase, 3 - 15% slopes
Marlow - Lyman soils, stony phase, 15 - 45% slopes

Peru - Marlow soils, 3 - 15% slopes
Peru - Marlow soils, stony phase, 3 - 15% slopes

Glacial Tills

Peru - Ridgebury soils, 0 - 8% slopes
Peru - Ridgebury soils, stony phase, 0 -8%slopes

Ridgebury - Peru soils, 0 - 8% slopes
Ridgebury - Peru soils, stony phase, 0 - 8% slopes

Berkshire - Peru soils, 3 - 8% slopes
Berkshire - Peru soils, 8 - 15% slopes
Berkshire - Peru soils, stony phase, 3 - 15% slopes

Berkshire - Lyman soils, stony phase, 15 - 25% slopes

Hermon - Lyman soils, 8 - 15% slopes
Hermon - Lyman soils, 15 - 25% slopes

Hermon - Lyman soils, stony phase, 3 - 15% slopes
Hermon - Lyman soils, stony phase, 15 - 45% slopes

Hermon - Waumbek soils, 3 - 8% slopes
Hermon - Waumbek soils, 8 - 15% slopes
Hermon - Waumbek soils, stony phase, 3 - 15% slopes

Waumbek - Hermon soils, 8 - 15% slopes

Waumbek - Hermon soils, stony phase, 8 - 15% slopes

Waumbek - Leicester soils, 3 - 8% slopes

Waumbek - Leicester soils, stony phase, 3 - 8% slopes

Leicester - Waumbek soils, 0 - 8% slopes

Leicester - Waumbek soils, stony phase, 0 - 8% slopes

Thorndike - Bangor soils, 3 - 15% slopes

Thorndike - Bangor soils, rocky phase, 3 - 15% slopes

Dixmont - Monarda soils, 0 - 8% slopes

Dixmont - Monarda soils, stony phase, 0 - 8% slopes

Water deposited soils

Glacial Tills

Suffield - Buxton soils, 15 - 45% slopes

Buxton - Suffield soils, 15 - 25% slopes
Buxton - Belgrade soils, 0 - 15% slopes
Buxton - Scantic soils, 0 - 15% slopes
Buxton - Hollis soils, 0 - 15% slopes
Buxton - Lyman soils, 3 - 15% slopes

Scantic - Buxton soils, 0 - 8% slopes
Scantic - Biddeford soils, 0 - 3% slopes
Scantic - Swanton soils, 0 - 3% slopes

Biddeford - Organic soils, 0 - 3% slopes

Hartland - Belgrade soils, 15 - 25% slopes

Water deposited soils

Belgrade - Hartland soils, 8 - 15% slopes
Belgrade - Raynham soils, 0 - 8% slopes
Belgrade - Scantic soils, 0 8% slopes

Raynham - Belgrade soils, 0 - 8% slopes

Elmwood - Swanton soils, 0 - 15% slopes
Elmwood - Woodbridge soils, stony phase, 0 - 15% slopes

Swanton - Elmwood soils, 0 - 3% slopes
Swanton - Scantic soils, 0 - 3% slopes

Glacial Outwash Soils

Colton soils, 15 - 45% slopes
Colton - Duane soils, 0 - 15% slopes

Hinckley - Sudbury soils 0 - 15% slopes
Hinckley - Windsor soils, 15 - 30% slopes

Sudbury - Walpole soils, 0 - 3% slopes

Adams - Colton soils, 0 - 15% slopes

Windsor - Deerfield soils, 0 - 8% slopes

Agawam - Ninigret soils, 0 - 15% slopes

Glacial Outwash Soils

Ninigret - Walpole soils, 0 - 8% slopes

Walpole - Scarboro soils, 0 - 3% slopes

Scarboro - Organic soils, 0 - 3% slopes

Augres - Windsor soils, 0 - 3% slopes

Deerfield - Walpole soils, 0 - 8% slopes

These general soil units are expressed as predominant soil types with inclusions. For example, "Hollis - Charlton soils, 3 - 15% slopes" indicates a soil unit of predominantly Hollis soil with inclusions of Charlton on slopes which range from three to fifteen percent. Suitability ratings for each unit of soil are computed for the predominant soil within that unit. In the example above, all suitabilities for this unit would be those for Hollis soils as listed in the Soil Suitability Guide for Land Use Planning In Maine, 1975 edition (see reference above, p.).

One additional point requires some explanation: The Soil Suitability Guide Lists four categories of suitability rating - good, fair, poor and very poor. For the coastal planning process, these have been compressed into three categories; suitable, intermediate and unsuitable. "Good" and "fair" soil ratings for a particular use are deemed "suitable" for that use, meaning that conditions generally appear favorable for that activity. "Poor" soil ratings constitute "intermediate" suitability, meaning that construction is feasible but costly and/or inconvenient. "Very poor" soil ratings mean that the soil is unsuitable for the given use - development is essentially impractical on such soils.

Surficial geologic conditions are considered along with the soils conditions in determining land suitability for subdivisions. The two types of information are very similar, yet the background and perspective of the geologist offers a point of view which complements the soils data. The surficial geologic data has been provided by the ongoing surficial mapping program of the Maine

Ninigret - Walpole soils, 0 - 8% slopes

Walpole - Scarboro soils, 0 - 3% slopes

Scarboro - Organic soils, 0 - 3% slopes

Augres - Windsor soils, 0 - 3% slopes

Deerfield - Walpole soils, 0 - 8% slopes

These general soil units are expressed as predominant soil types with inclusions. For example, "Hollis - Charlton soils, 3 - 15% slopes" indicates a soil unit of predominantly Hollis soil with inclusions of Charlton on slopes which range from three to fifteen percent. Suitability ratings for each unit of soil are computed for the predominant soil within that unit. In the example above, all suitabilities for this unit would be those for Hollis soils as listed in the Soil Suitability Guide for Land Use Planning In Maine, 1975 edition (see reference above, p.).

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Surficial geologic conditions are considered along with the soils conditions in determining land suitability for subdivisions. The two types of information are very similar, yet the background and perspective of the geologist offers a point of view which complements the soils data. The surficial geologic data has been provided by the ongoing surficial mapping program of the Maine Bureau of Geology. Availability and detail of mapped data currently varies from area to area as do the mapping units which have been used. The Knox region (Friendship to Lincolnville) has been completely mapped in considerable detail, thus the surficial data for that area has been used most extensively IN LOCATING SUCH DEVELOPMENT AFFECTING FACTORS

2. COMPOSITE MAP - AREAS OF PARTICULAR CONCERN

1. Floodplains

The definition of "floodplains" used here is tbe area of land which would be inundated by a "100-year" frequency flood. The "100-year" frequency flood is a water level which can be expected to occur once in a period of 100 years, or which has a one percent chance of occurring during any single year.

Flood-prone area maps have recently been produced for most Maine towns by the U.S. Department of Housing and Urban Development. Data for these was produced by two separate organizations working somewhat independently of one-another. The first of these is the U. S. Geological Survey, Water Resources Office which is housed at the Maine Public Utilities Commission in Augusta. The other source of information was the engineering firm of DeLeuw, Cather and Company of Boston, Massachusetts. Each of these sources of date was considered for use in the Coastal Plan. Both sources showed severe limitations in accuracy of data, but the criteria used by DeLeuw and Cather seemed to most realistically define the area in which flooding would occur under 100-year flooding conditions. DeLeuw and Cather determined thase stream, river and lake shorelands which could be expected to flood by using records of major past flooding, record high stream gauge heights, and a relationship between drainage area and flood heights for various hydrologic units. Specifically, stream gauge records of the floods of March 1936 provided a general guide for anticipating flood heights. In most cases, streams draining less than 10 square miles were not considered by DeLeuw and Cather to present significant flooding hazards. Anticipated flood heights along coastal shores were determined from storm height predictions produced by the U. S. Army Corps of Engineers. These coastal flood heights ranged from eight feet above mean high water in southern Maine to 15 feet above mean high water in eastern Washington County.

Generalization of data and lack of familiarity with the Maine coast produced

significant inaccuracies in the DeLeuw, Cather mapping. The State Planning Office has attempted to correct that problem by making three major changes in the information: (1) A water level rise of 10 feet up a shoreland slope of 5 percent will intrude only 200 feet inland from the shore of the ocean or any lake, river or stream. At the coastal atlas mapping sclae of 1;48,000, a land distance of 200 feet is represented as 1/20 inch - essentially an indistinguishable unit. For this reason, no shoreland areas with slopes of greater than 5 percent have been included as floodplains. (2) Soils data produced by the Soil Conservation Service for this project indicates some soils which are likely to be inundated under flooding conditions. These soils are: Podunk, Rumney, Saco, Winooski, Limerick, organi c soils, tidal marsh, coastal beach, dune land, Ninigret soils, Walpole and Scarboro. Where elevations indicate that such soil areas were likely to be flooded these areas were designated as floodplains. (3) The inland limit of the floodplain area was generally limited to 10 feet above the water or to the coastal flood heights mentioned above. Determination of these heights was made by interpolating between contours.

Two major points must be kept in mind by persons who will be using this information. First, it represents the first refinement of some very rough data, and further refinements should be made. Second, detailed representations of floodplains at scales larger than 1:48,000 require substantially more engineering studies and field work than have gone into this work.

2. Areas of Natural, Historic, Prehistoric, Cultural and Scientific Importance

Natural areas were inventoried during 1971 and 1972 by the consulting firm of Reed and D'Andrea of South Gardiner, Maine for The Natural Areas Inventory published by the Natural Resources Council of Maine under funding provided by the New England Regional Commission. For the purpose of the inventory, "natural area" was defined broadly as "...areas of land or water which retained to some degree their natural character, and which exhibited native plant and animal communities or rare or valuable individual members of such communities, or any other natural features of unique or unusual scientific, educational,

geological, ecological or scenic value."[1] The areas included on the Coastal Atlas maps were chosen from The Natural Areas Inventory as those especially significant from the state perspective and then verified by field checking.

Some of the natural areas were plotted with different categories of data where appropriate. For instance, areas which were chosen as "natural areas" because of their scenic value have been mapped as "significant scenic areas" and natural areas with value for wildlife are indicated on the areas of particular concern maps as important habitats.

The Maine Historic Resources Inventory, published in 1974 by the Maine Historic Preservation Commission, includes all sites and structures which have been determined by the Commission to be of historic importance to the state as a whole. The purpose of the inventory "was to identify future potential National (historic) Register nominations in Maine." Entry on the National Register ensures protection of the site from "the negative impact of any federally funded project."[2] Historic buildings and places included on the Coastal Atlas Maps are the portion of those recorded in the Maine Historic Resources Inventory which are also included in the National Register of Historic Places. It was felt that the historic areas included in the National Register were most significant for state planning purposes.

Areas of prehistoric significance are shell midden, and other signs of "prehistoric" settlements by man which are of value to archaeologists studying the very early patterns of human activity along the coast. The archaeologic sites of Sagadahoc, Lincoln, and Hancock

[1]The Natural Areas Inventory Introduction by Herb Hartman, Natural Resources Council of Maine, Augusta, Maine, May 2, 1973.

[2]Introduction, Historic Resources Inventory, Maine Historic Preservation Commission, Augusta, Maine, 1974.

counties have been identified by David Sanger, Diane Davis and Stephen Davis as a result of work conducted during the summer months of 1973 and 1974. Additional sites in Sagadahoc, Lincoln, Knox and Hancock counties were identified by Dr. Bruce Bourque, Archaeologist at the Maine State Museum in Augusta. The sites are of particular significance to the state because they are some of the few signs by which archaeologists and historians can piece together the trends of human settlements which evolved during the 11,000 years of prehistoric human activity.[3]

Data sheets outlining values and vulnerability of particular prehistoric sites are on file at the State Planning Office. This list of archaeological sites cannot be considered final and complete, since new sites will very likely be discovered in the future.

3. Shoreland Areas as Defined in State Law - This category of areas of particular concern delineates all land areas within the coastal zone which have significant impact upon water resources of the state as set forth in the mandatory shoreland zoning and subdivision control act, Title 12, M.R.S.A., Sections 4811-4814. All land areas within 250 feet of tidal waters, great ponds and rivers draining 25 square miles or more are included in this definition and are mapped. River and coastal shorelands as defined in the law have been plotted by the Water Resources Division of the State Planning Office; Map of Rivers and Tidal Waters Subject to Shoreland Zoning and Subdivision Controls. This map was used, and in addition all shoreland areas of lakes larger than 10 acres in size were plotted.

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[3] An Archaeological Survey of a Portion of Hancock County, Maine. Submitted to the State Planning Office by David Sanger, Associate Professor of Anthropology and Quaternary Studies, University of Maine at Orono, September 1973.

4. Areas Within 250 Feet of Highways - Because of Maine's heavy emphasis upon transportation by automobile and truck, it is obvious that the land which is most likely to be developed is that land which lies very close to an existing road or highway. Roadside development is of both local and regional concern for the traffic, pedestrian safety, and visual impact aspects of such development. Land Adjacent to major highways has been plotted on the area of particular concern maps. The term "major highways" in this case is limited to numbered state and federal highways as designated on the General Highway Atlas of Maine prepared by the Maine Department of Transportation, Bureau of Transportation Planning and Services, 1973 edition. The distance of 250 feet was chosen because it would cover most land areas which are directly subjected to pressures of "strip" development and because it is consistent with the definition adopted by the Legislature.

5. Mineral Resources - Mineral resources are considered to be areas of particular concern in cases where the deposit is of sufficient size or significance to be of more than just local importance, where the mineral is apt to be exploited in the near future and where mining or excavation operations would cause disruption of land use activities at the site. Types of minerals which were included are sand and gravel deposits which offer potential as construction material when they are at least 50 acres or more in size, and bedrock minerals - granite, limestone, metal ores, and others if they meet the criteria stated above. Areas less than 50 acres in size are included on the maps if the region in which they are located is sparsely served by mineral resources. Sources of data include the Mineral Resources of Maine map series published by the Maine Geological Survey (Maine Bureau of Geology) at a scale of 1:250,000; discussions with the Bureau of Geology staff and the surficial geology map series being produced by the Bureau of USGS 15 minute and 7.5 minute scales.

In considering the value of minerals in Maine, it should be borne in mind that the value of certain minerals can change very drastically and very suddenly. New technology can create a tremendous market for materials which were previously worthless. Technological advances can also increase the efficiency of extracting low grade ores in cases where mining would not otherwise be economically feasible. Therefore, the pattern of areas in Maine which offer valuable minerals can change quickly as market conditions and technology change.

6. Existing and Potential Aquaculture Sites - It is a well publicized assumption that the nutrient - rich sea waters along Maine's coast, the configuration and orientation of the shoreline and the wide diversity of physical conditions in Maine's inlets and estuaries constitute the circumstances which could support a successful aquaculture industry. This assumption has not yet been proven, but, if this is the case, areas with excellent conditions for fish-farming are valuable resources. Such sites could become the focus for significant commercial activities.

Although all areas within Maine's marine environment are not equally suited for such "sea farming" operations, there is a real potential for economic aquaculture along much of the coast. In these areas, it would be unwise to deny the valuable options of developing this resource in the future. Land uses compatible with future aquacultural development would be most appropriate in these areas. In Maine, aquaculture is a relatively new enterprise, thus few criteria have been developed for determining which marine sites offer the greatest potential for fish production. A few site requirements are generally agreed upon by experimental aquaculturalists and fisheries researchers: If an area of water can be enclosed and protected from storm waves, physical conditions within the enclosure can be controlled and regulated to some degree. Some tightly constricted embayments can be modified to hold a large volume of deep water during low as well as high tides. Lobster pounds are readymade for this purpose.

These sites, lobster pounds and deep constricted coves, seem at present to offer the greatest potential for fish farming within the Maine coastal zone. If aquaculture does indeed offer an opportunity to the Maine coast, then these sites should be a focus for further efforts to gain some additional profit from the marine environment. A preliminary survey of potential aquaculture sites has been conducted jointly by the State Planning Office and the Department of Marine Resources. Possible sites were chosen from data presented on the U. S. Department of Commerce, National Ocean Survey charts. Field-checking then eliminated those sites which did not have sufficient depth of water or conditions necessary for construction of devices for maintaining deep water or which did not offer sufficient protection from waves. This survey is very preliminary in nature and is intended to indicate areas which appear to be well-suited for growing oysters, mussels or salmon, using floating or suspended pens, rafts or ropes. In some cases, areas were designated which might be suitable for subtidal clam aquaculture using dredges. In all cases, physical and biological characteristics of water which might influence growth rates were not considered in this survey.

Existing aquaculture sites include those sites where oysters are being grown through the cooperative oyster culture project of the University of Maine's Darling Research Center. Locations of additional aquaculture operations have been included from other sources.

7. Existing and Potential Agriculture Sites - Growth of production of food and fiber are basic requirements which concern everyone, and although the coast of Maine is generally not well-suited for agriculture, the few sizable areas which are suited for farming are a particularly important factor to consider in making land use decisions. For these purposes it is important to delineate farm land which has proven its value through current agricultural production as well as cleared land which offers potential for production because of suitable soils and slopes.

Existing farms include large commercial farming operations which are producing crops or livestock for food. (This does not include chicken farms which generally do not involve direct production of food from the land.) General locations of farms have been provided for this project through the efforts of town selectmen and tax assessors and the USDA, Soil Conservation Service personnel in each county. These locations have been checked against land cover data derived from interpretation of aerial photographs to determine more precisely the extent of open fields and tilled land related to each commercial farm. Those areas of open or tilled land which are larger than 50 acres are then plotted as areas of particular concern. Areas less than 50 acres in size but clustered with other similar areas and collectively containing 50 acres are included on the atlas maps as it is likely that they are part of the same farming unit. These commercial farm locations still require some checking which will be accomplished this summer through field work and discussions with local officials.

Blueberry production is an important agricultural activity along the coast, particularly in Washington and Hancock Counties. Thus, land areas with high value for blueberry production were included in this category of areas of particular concern. Some blueberry areas are of marginal value for blueberry production, however, and it was felt to be necessary to screen out such areas by eliminating blueberry lands which are not on well-drained outwash soils or surficial formations of sandy material - outwash sand and gravel, eskers, kame terraces and large moraines of sorted sand and gravel. Similarly, blueberry lands on sandy soils which comprises less than 50 acres are not included in this category.

Blueberry lands are delineated on cover maps produced for this project from aerial photographs (Soil Conservation Service photos, photos taken by the James W. Sewall Company especially for this project and NASA U-2 photos). Outwash soils include the following units as mapped for the coastal planning project:

Colton Soils
Colton with inclusions of Duane
Hinckley with inclusions of Sudbury
Hinckley with inclusions of Windsor
Sudbury with inclusions of Walpole
Adams with inclusions of Colton
Windsor with inclusions of Deerfield
Agawam with inclusions of Ninigret
Ninigret witn inclusions of Walpole

Areas of potential agricultural value are land areas at least 50 acres in size which satisfy three criteria; having suitable soils for cultivated crops, having suitable slopes for cultivsted crops, being open, cleared land. Soil suitability fir cultivated crops is "based on general suitability of the soil to grow corn, peas, beans, small grains and similar crops. The suitability ratings are not based on irrigated soils. It does not infer that all species or varieties do equally well on a given soil. The following factors are used to determine the ratings: drainage, slope, surface stoniness, surface rockiness, rooting depth, available water, surface texture and flooding."[4]

These soil-slope ratings are taken from the February, 1975 edition of the Soil Suitability Guide for Land Use Planning in Maine published by the University of Maine Cooperative Extension Service. Soils rated in the Suitability Guide as "good" or "fair" for crops are considered "suitable" for our purposes here.

The following soil types are "suitable" for crops:

Charlton Soils with inclusion of Sutton on 0-8% slopes
Sutton soils with inclusions of Leicester on 0-8% slopes
Sutton soils with inclusions of Ridgebury on 0-8% slopes
Paxton soils with inclusions of Woodbridge on 3-8% slopes
Woodbridge soils with inclusions of Ridgebury on 0-8% slopes
Marlow soils with inclusions of Peru on 3-8% slopes
Peru soils with inclusions of Ridgebury on 0-8% slopes
Berkshire soils with inclusions of Peru on 3-8% slopes

[4] Soil Suitability Guide for Land Use Planning In Maine, Cooperative Extension Service, University of Maine at Orono, February, 1975, page 1A.

Dixmont soils with inclusions of Monardo on 0-8% slopes
Belgrade soils with inclusions of Raynham on 0-8% slopes
Belgrade soils with inclusions of Scantic on 0-8% slopes
Sudbury soils with inclusions of Walople on 0-3% slopes
Agawam soils with inclusions on Ninigret on 0-15% slopes
Ninigret soils with inclusions on Walpole on 0-8% slopes

Determinations of cleared land have been drawn from the categories of "Agricultural Land," "Tilled land" and "Field" on the land cover maps produced for this project from aerial photographs.

8. Areas Which are Intensively Managed for and Highly Productive of Timber - The importance of timber resources and the wood products industry in Maine is well established. The forest resource within the coastal zone is very significant, and there is potential for greater production of pulpwood, lumber and firewood from more extensive management of those coastal woodlands which have suitable soil and slope conditions. At present, much of the managed timber in the coastal zone is involved in the USDA Tree Farm program or other similar forest management operations. Those portions of tree farms or similar forest management areas which exist on soils which are suitable for forest production are designated as areas of particular concern when these areas are at least 50 acres in size.

Lists of tree farm owners have been obtained from the Maine Bureau of Forestry. Approximate locations of these areas have been plotted with the help of local government officials and Soil Conservation Service personnel in each county or from tax maps where these are available. These locations require additional checks through field work to be conducted this summer.

Soil and slope ratings of suitability for forest production are drawn from the Soil Suitability Guide for Land Use Planning in Maine. The guide rates wach soil type according

to its general ability to produce wood volume for White Pine, Red Pine, Spruce, Fir and general hardwood species. "Suitable" soils for forest production are those on which moderate to high growth rates can be expected for any of these forest types. Soil characteristics which are considered in making these suitability judgements are drainage, rooting depth (red pine and hardwoods), surface rockiness, textural stability and surface stoniness.[5]

Most soil types fit the criteria of being suitable for at least one of these forest types, essentially those soil types which are not "suitable" are rock land, very rocky soils, wetland and organic soils, and dune and beach soils.

9. Wetlands - Wetlands have been included as areas of particular concern because of their general value for wildlife and for primary production of nutrients, for their ability to absorb and retain flood waters, and their hydrologic function influence affecting area-wide water quality. For this purpose, "wetlands" includes land areas which are regularly or periodically saturated or flooded with water. This includes coastal marshes and meadows which are flooded by tidal water, but it does not include intertidal flats or beaches. The wetland data which is used is that which is plotted on the cover maps produced for this project from aerial photographs, as explained on page 8. Delineations of wetlands from photos is based upon visible signs of saturated soils or of wetland vegetation. The scale of maps and of photos is such that wetlands which are smaller than 5 acres are usually not delineated.

10. Beach and Dune Systems - Beach and dune systems are unstable natural areas. Significant changes in physical conditions affecting a beach can alter the beach system or destroy it completely. Due to their vulnerable nature, these systems have been designated as unsuitable for development and as areas of particular concern.

The beaches considered in this category are sand beaches only (not gravel or cobble beaches). The category is also limited to coastal beaches. This excludes beaches on lakes,

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[5] Soil Suitability Guide for Land Use Planning in Maine, Cooperative Extension Service, University of Maine at Orono, February, 1975, page 4A

ponds and non-tidal rivers.

The sources of data for this category are the ongoing program of marine environments mapping being conducted by the Maine Bureau of Geology, the Soil Conservation Service mapping of soil conditions, and the land cover maps being produced by the State Planning Office and the Sewall Company. The marine environments maps are being produced from USDA Soil Conservation Service photos. The area which is being mapped is the intertidal zone and shallow subtidal area to the limit of light penetration of the water on the photos. The original marine environments data mapping is at a scale of 1:24,000.

Generally, beaches which are at least a quarter of a mile in length and have recreational potential are included on the Area of Particular Concern maps.

11. Shoreland Areas Especially Vulnerable to Erosion - Certain steep soil bank areas and cliffs along the coast are currently eroding and present problems or hazards to land-owners or prospective developers. In other areas, although soil texture and steep slope conditions would present erosion problems, existing vegetation is maintaining surface stability. In the latter situation, development might remove enough vegetation to trigger a substantial erosion problem from surface runoff and the undercutting action of the tide.

Stretches of coastline where such problems or potential problems exist have been designated as areas of particular concern. Sources of information have been the district conservationists and soil scientists who have pointed out sections of coastal shoreline where erosion problems or potential problems exist.

12. Significant Beaches - In addition to being extremely vulnerable to physical changes, beaches offer obvious attractions for recreation. This is particularly the case in Maine where only a portion of the state's coastline is beach. All sand beach areas do not offer similar

values for recreation. The size of a given beach, quality of scenery viewed from the beach, ownership and accessibility all affect its direct value as a recreation resource. Our impression is that the major single factor which affects this value and which cannot easily be changed is the size of the beach itself. Although small beaches are certainly valuable, it is the large beaches which generally attract people from considerable distances, and which therefore constitute a situation or area of particular concern. Our impression throughout the Maine coast is that beaches which are at least a quarter of a mile long tend to attract considerable numbers of people during the summer months. Thus, all coastal shoreland areas which are "Beach and Dune Systems" one-fourth mile or more in length have been given additional Area of Particular Concern designation as "significant beaches" offering significant recreational opportunities. In sections of the Maine coast where sand beaches are scarce, beaches less than one quarter of a mile in length may be considered a valuable regional asset and therefore an area of particular concern.

13-14. Heavily used Footpaths and Canoe Routes - Popular canoeing streams and hiking trails can quite easily become sources of conflict between recreation-conservation interests and development interests, particularly in a state such as Maine which derives substantial income from the tourist and recreation industry.

In locating such trails and streams, the attempt has been made to include only those trails which are widely used by persons from beyond the immediate vicinity. The best sources for this information have been the Appalachian Mountain Club, the New England Canoeing Guide and the AMC Trail Guide, published by the Appalachian Mountain Club of Boston, Massachusetts. The information listed in these guides is valuable from the perspective of indicating popular or valuable trails themselves and also from the standpoint of publicizing trails and thus making them more popular. Additional trails and canoe routes have also been added to this list when it is clear that they are of importance beyond the local area. The State Planning Office is conducting ongoing research on trails and canoe routes and will make this information available upon request.

15. Significant Scenic Areas - Outstanding scenic quality is one of the Maine coast's most valuable resources. Much of the concern for land use planning within the coastal zone actually stems from a desire to protect this scenic quality. Scenic value, however, is such a personal and elusive quality that relatively few attempts have been made to consider scenery in making land use plans in Maine. To include scenic quality as part of the coastal atlas effort, a process was worked out for identifying and locating outstanding scenic views along the Maine coast as areas of particular concern.

The scenic inventory and evaluation process was limited to views which are seen from paved roads. A complete inventory of scenery from trails and waterways would have been a time-consuming task beyond the scope of the atlas maps, and it was felt that the scenic areas which have the greatest exposure are those which are viewed from roads and highways.

The first step in the process was an inventory of scenic areas conducted by automobile along all paved roads throughout the coastal zone. The person conducting the inventory was asked to locate scenes "which might be considered of high scenic value to people who live and travel in the coastal region." All such scenes were located on maps by plotting both the point from which the scene was viewed and the foreground land area of the scene - i.e., that portion of the scene which is so close to the viewer that development there would severly disrupt the scene. Each scene was then photographed, most on color slides. (Knox County and Mount Desert Island were done on black and white prints.)

The second stage of the process was the evaluation and rating of the scenes. The slides showing the scenic areas within each coastal planning area were shown to a group of

six individuals who were asked to "think of being at" each individual site and to rate their response to each scene on a scale of 1-10. A rating of one was given to scenes which the viewer felt were not scenic or attractive. A rating of five was to indicate "attractive Maine scenery-quite enjoyable." The rating of ten was to be given to "outstanding scenery-very enjoyable." The other numbers, 2-4 and 6-9, were used to fill in the rating scale.

The six individual evaluations for each scene were averaged and for each planning area of the coastal zone (6 areas from Brunswick to Goundsboro) the 20-30 percent of scenic areas which had the highest ratings were designated as areas of particular concern. The foreground areas of these views have been plotted on the Area of Particular Concern maps.

The people who took part in the evaluation process were members of the State Planning Office staff and included draftsmen, typists, librarians, administrators, and staff planners.

A small number of additional areas were also designated as Significant Scenic Areas. These are the natural areas listed in the Natural Resources Council Natural Areas Inventory which were chosen as natural areas, primarily because of their scenic value.

16. Important Habitats - Some important wildlife and marine resources habitats have been designated as areas of particular concern. This includes habitat areas of species which are especially valuable for commercial or recreation interests and those habitat areas which are particularly vulnerable to man's activities. This includes deer wintering areas or "yards", waterfowl production and feeding areas, bird nesting areas (eagles, ospreys, herons, elders, and other birds), lakes and ponds with high value for sport fishing, migration routes and spawning areas of salmon, alewives and smelt, productive clam flats, (both closed and open), productive worm flats, areas which are heavily dragged for scallops and areas which can be

expected to be heavily fished for lobsters during the most important lobstering season from July through October.

Wildlife, waterfowl, bird nesting and inland fish data have been gathered by the Maine Department of Inland Fisheries and Game from the following sources:

From Fish and Game Department regional biologists;

1. deer wintering areas
2. waterfowl areas
3. winter waterfowl inventory data
4. deer wintering area data

Information on eider and other colonial bird nesting islands, and eagle and osprey nest site information was obtained through file information, publications and/or personal communications with the following:

1. Howard Mendall, Leader, Maine Cooperative Wildlife Research Unit, Orono, Maine
2. Dr. William Drury, Massachusetts Audubon Society, Lincoln, Mass.
3. William Snow and Frank Gramlich, USF&WS, Augusta, Maine
4. Richard Anderson, Director, Maine Audubon Society, Portland, Maine
5. Jamie Johnston, osprey investigator, Student, University of Maine, Orono, Maine
6. Hank Tyler, Coastal Planning Group, Augusta, Maine

Additional data was also gathered from the Maine Natural Resources Council Inventory of Natural Areas and plotted as important habitat when this was its major reason for being included on the natural areas file.

Anadromous fish data was provided by Lew Flagg, the anadromous fish specialist at the Maine Department of Marine Resources. The Coastal Wardens of the Department of

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Marine Resources and individual fishermen provided information as to the locations of valuable scallop areas, clam flats and worm flats.

Lobster fishery areas were inferred from depth contours on National Ocean Survey sea charts. Relatively shallow (less than ninety feet) rocky bottom areas and submerged ledges were identified on the charts and fishermen and coastal wardens were asked to make adjustments in this delineation to produce a general indication of areas which usually are heavily fished.

The marine resource data is mapped as it was reported by fishermen and wardens, and, therefore, it is somewhat incomplete, and it requires revisions and additions.

17. Watersheds of Municipal Water Supplies - The quality of water which is used for human consumption is a major concern to towns everywhere. Improper siting of facilities and activities in the watershed areas of town or city supply ponds or rivers can contaminate water systems and threaten the health of hundreds of people. For this reason, the watershed area of each water supply source has been outlined on the area of particular concern maps.

Water supply sources and locations of intakes were obtained from town officials. Watershed boundaries were then determined by following drainage patterns and ridgelines on U.S. Geological Survey 7.5 and 15 minute topographic maps. Watersheds were only defined for surface water supply or storage systems which are open to surface drainage. (This excludes wells and sealed storage systems.) The watershed boundary therefore generally encloses all land which drains into water supplies.

In a few cases, there are circumstances which complicate this situation. For example, the town of Bucksport pumps water from Silver Lake which has a rather small watershed area. However, the Silver Lake system is backed up by an auxiliary feed through an aquaduct from Alamoosook Lake. Thus, the entire Alamoosook Lake watershed contributes some water to the

town of Bucksport. In this case, the decision was made to delineate only the Silver Lake watershed as an Area of Particular Concern, because it most directly influences the water supply. In other cases where a town or city takes its water from an extensive drainage system, the Area of Particular Concern will be narrowed down to the drainage area which most directly influences the water supply.

3. BASE DATA OR REFERENCE MAPS

The following base maps listed below are described with regard to map scale, level of detail, information categories, legitimate uses and sources. Each map in the coastal atlas will also carry a short specific description on the reverse side.

Base data or reference maps are exactly what their map type title implies. Their primary purpose is to record a variety of data to be used as reference material. They are presented in the Coastal Planning Atlas as individual informational resources and as a demonstration of the base data which has been incorporated in the other two atlas map types, overlay and composite maps.

Following is a list of the base data maps included in the Coastal Planning Atlas:

(1) Topography and Culture

(2) Groundwater (3 maps)

(3) Surficial Geology

(4) Bedrock Geology

(5) Marine Environments

(6) Water Classification and Watersheds

(7) Wildlife, Fish and Marine Resources (2 maps)

(8) Land Use I, Cover Types

(9) Land Use II, Facilities and Activities

(10) General Soils

(1) Topography and Culture

The topography and culture map is the essential uniform base map which records land surface contours and certain existing land development information. Important uses of this map are to provide a uniform record of certain land conditions to be used throughout a mapping series and to provide a uniform skeleton of existing features for vocational reference. This map was redrafted from the USGS maps and modified to assume the standard 1"=4,000' scale of the mapping series. The amount of information available on the USGS maps was reduced in transfer to the topography and culture map to reduce clutter and provide an essential graphic skeleton for reference. The major road system, for example, was retained while individual houses were deleted. Some minor updating of the original USGS series was performed.

(2) Groundwater (3 maps)

The scale of the three groundwater maps is 1:125,000 providing a generalized treatment of groundwater conditions for planning purposes. These maps are most useful in providing a general sense of groundwater hydrology especially the direction in which material could be expected to flow if introduced into the watertable and expected well yields in specific areas. Logs of commercial well drillers and contacts with individual homeowners were used as source materials and compiled by the Bureau of Geology. The three groundwater maps included in the coastal atlas are (1) Depth of Overburden, (2) Piezometric or Pressure Related Watertable, and (3) Bedrock Topography.

(3) Surficial Geology

Surficial geology mapping was performed at the standard scale of the USGS 7.5' and 15' sheets at a minimum mapable area of 5 acres and is most useful in providing a general understanding of the character of land surface deposits as they might affect resource mining or land development. The information recorded varies from one section of the coastal zone to the other according to the influence of forces felt in past geologic history from which

current character of the land surface is derived. Surface conditions such as marine sediments (Rockland area limestones), deltas, eskers (sand and gravel deposits), glacial till and shallow depth to bedrock are recorded. In addition to providing a general understanding of the nature and derivations of the existing landscape, the surficial geology maps locate economically valuable sand and gravel deposits, mineral deposits, and identify highly permeable soil areas where development would present serious groundwater contamination problems. The surficial geology map mirrors the movements and effect of the last great continental ice sheet some 12,000 years ago; the force from which most modern Maine surficial geology is derived. After this last great glacier carved out most present day major land forms and receded, the sea level rose to a point some 300' above current sea level. This marine intrusion provided the coastal zone with marine sediment formations such as limestone. The bulk of surficial geology mapping was compiled by the Bureau of Geology.

(4) Bedrock Geology

Bedrock geology was mapped at 1:125,000 by the Bureau of Geology using air photo interpretation supported by field checking. It records down to a 5 acre minimum size the varying lithographic (rock) components of the continental crust material underlying the entire coastal zone area. It is most useful in providing a general understanding of the specific bedrock components in the coastal zone as they might effect land planning decisions.

(5) Marine Environments

Marine environments were mapped at 1:24,000 by the Bureau of Geology and record a variety of nearshore marine environments from a geologic point of view. Shoreland formations such as spits, levees, tidal ponds, and marshes are recorded on the marine environments map.

This information was forst recorded at 1"=4,000' uniform mapping scale of the coastal atlas allowing a minimum mapping unit of one acre. This map is most useful in acquiring a basic understanding of marine geologic processes and environments as they relate to development and water use suitability.

(6) Water Classifications and Watersheds

This map was compiled by the State Planning Office as a scale of 1"=4,000' and records the statutory water quality classes for planning purposes (not existing water quality) and defines major watershed boundaries throughout the coastal zone. Water classifications for all streams and ponds indicated on the USGS maps were plotted by the State Planning Office based upon extensive communication with the Department of Environmental Protection. The watersheds were mapped using existing topography. This map provides a useful understanding of water classification goal for planning purposes and the general hydrology of major watersheds.

(7) Wildlife, Fish and Marine Resources (2 Maps)

These maps produced at 1"=4,000' by the Department of Inland Fisheries and Game are based upon information gathered from regional biologists, coastal wardens, University of Maine personnel, published inventories and individual researchers. A five acre minumum mapping unit was used except for pinpointing the location of nesting habitats. These maps record the location of most important wildlife habitats and are useful from a land planning and preservation point of view. The marine resources information was compiled in a joint effort by the State Planning Office and the Department of Marine Resources. Plotting of fin and shellfish fisheries and marine and anadromous patterns provides a useful inventory of existing marine resources as part of an overall coastal planning effort.

(8) Land Use I, Cover Types

The land cover maps were compiled at 1"=4,000' from a variety of sources and source materials and at a variety of minimum mapable detail.

Areas 1 & 2 were done by Sewall Company from Soil Conservation Service black and white photos taken in 1966.	5 acre minimum mapping unit.
Areas 3, 4-1, 4-2, and Winter Harbor in 4-3 were done by Alda Stich of the State Planning Office staff using U-2 photos (1973) and Soil Conservation Service black and white photos (1966) supported by field checking.	5 acre minimum mapping unit.
The remainder of area 4-3 and the town of Richmond were done from U-2 photos (1973) by Bob Fiske for Sewall Company.	Area 4-3, 20 acre minimum mapping unit. Richmond, 5 acre minimum mapping unit.
Areas 5 and 6 were done by Sewall Company -- from black and white photos (1972) flown by them for the State Planning Office.	5 acre minimum mapping unit.

The land cover maps offer a valuable record of existing land uses and conditions and provide a logical base for future planning. The cover categories used are consistent with those published by the State Planning Office.

(9) Land Use II, Facilities and Activities

The facilities and activities maps were compiled at 1"=4,000' by the State Planning Office with supporting information gathered from the Soil Conservation Service and federal, state, and local municipal officials. Field checking was conducted when necessary. This map provides pinpoint location of community facilities and activities throughout the coastal zone offering an accurate inventory of existing assets. The information recorded ranges from large tree farms down to single buildings providing a useful base of information for recreation activity, community facilities and general land use planning. The State Planning Office is onvolved in an ongoing information gathering effort on this subject and will make information available on request.

(10) General Soils

The general soils maps were provided for the State Planning Office by the Soil Conservat on Service at a scale of 1"=4,000'. The Soil Conservation Service put together information from medium intensity soil surveys where they were available, (Areas 1, 3, 4, less than half of the towns, Areas 2, 5, approximately 2/3 completed, Area 6, complete). The gaps were filled by generalized soil surveys from aerial photo interpretation supported by field checking. Minimum mapping unit - 10 acres for medium intensity surveys, 50 acres for general surveys.

When generalizing was necessary, soil associations were lumped into categories with other soil units with similar characteristics. A major soil category would then be listed with inclusions of sub units. These maps are extremely useful in making inferences about the suitability of land for development and provide an overview of predominant soil characteristics.

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4. Information Being Gathered By The Coastal Planning Group

1. Groundwater
2. Depth of Overburden
3. Surficial Geology
4. Bedrock Geology
5. Marine Environments
6. Water Classification
7. Watersheds
8. Wildlife and Fish Resources
9. Marine Resources
10. Cover Types
11. Scenic Viewpoints
12. Recreation Facilities
13. Other Facilities and Activities
14. Historic Areas
15. Archeological Sites
16. Natural Areas
17. General Soils
18. Lake Classification
19. Slopes
20. Flood Prone Areas
21. Climatological Data

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22. Socioeconomic Data

23. Trails and Canoe Routes

24. Routes of Public Access

25. Surface Water Capability

An Appraisal of the Fishery and Wildlife Resources of the Lincoln County Planning Unit

submitted to:
The Coastal Planning Group
State Planning Office
Augusta, Maine

December 1974

Compiled by:

Howard E. Spencer, Jr.
Alan Hutchinson

Dept. of Inland Fisheries & Game

An Appraisal of the Fishery and Wildlife Resources of the York County Planning Unit

Submitted to:

The Coastal Planning Group

State Planning Office

Augusta, Maine

January 1975

Compiled by:

Alan Hutchinson
Howard E. Spencer, Jr.
Department of Inland Fisheries & Game

An Appraisal Of The Inland Fishery And Wildlife Resources Of The Washington County Coastal Zone Planning Units

submitted to:

The Coastal Planning Group
State Planning Office
Augusta, Maine

February, 1975

Compiled by:

Alan Hutchinson
Howard E. Spencer, Jr.
Maine Dept. Inland Fisheries & Game

An Appraisal Of The Inland Fishery And Wildlife Resources Of The Washington County Coastal Zone Planning Units

submitted to:

The Coastal Planning Group
State Planning Office
Augusta, Maine

February, 1975

Compiled by:

Alan Hutchinson
Howard E. Spencer, Jr.
Maine Dept. Inland Fisheries & Game

An Appraisal of the Fishery and Wildlife Resources of the Upper Penobscot Bay Planning Unit

submitted to:

The Coastal Planning Unit
State Planning Unit
Augusta, Maine

April, 1975

compiled by:

Alan Hutchinson

Howard E. Spencer Jr.

Dept. of Inland Fisheries & Game

An Appraisal of the Fishery and Wildlife Resources of the Bath-Brunswick Regional Planning Unit

submitted to:

The Coastal Planning Group
State Planning Office
Augusta, Maine

December 1974

Compiled by:

Howard E. Spencer, Jr.
Alan Hutchinson

Dept. of Inland Fisheries & Game

An Appraisal of the Fishery and Wildlife Resources of the Greater Portland Regional Planning Unit

submitted to:

The Coastal Planning Group
State Planning Office
Augusta, Maine

January, 1975

Compiled by:

Alan Hutchinson
Howard Spencer, Jr.
Dept. of Inland Fisheries & Game

An Appraisal of the Fishery and Wildlife Resources of Eastern Penobscot Bay Planning Unit

submitted to:

The Coastal Planning Group
State Planning Office
Augusta, Maine

February 7, 1974

Compiled by:

Howard E. Spencer, Jr.
Alan Hutchinson
Dept. of Inland Fisheries and Game

June 10, 1975

Summary of Resource Information Collected for Mid-Coast Maine Areas 1-6

Data Gathered	Methods, Materials, Personnel, and Sources Used	Level of Detail
1. Groundwater	Log records of commercial well-drillers and contacts with individual home-owners were used as the sources of data plotted by Brad Caswell, Bureau of Geology from 1972-present.	Mapped at 1:125,000; detail dependent upon number of wells drilled in a given area.
2. Depth of Overburden	Same as Above	Same as Above
3. Surficial Geology	Air photo interpretation supported by field checking in Knox, Lincoln, and Sagadahoc Counties by Geoffrey Smith for the Bureau of Geology; Hancock County by Harold W. Borns; Towns of Blue Hill, Sedgewick, Brooklin, Swan's Island, and Long Island Plt. done by Nicholas Genes for the Bureau of Geology; Waldo County is scheduled for this summer.	Mapped on U.S.G.S. 7.5' and 15' sheets. Mapping units vary; some areas were mapped down to 5 acre units.
4. Bedrock Geology	Air photo interpretation supported by field checking in Knox, Lincoln, and Sagadahoc Counties, compiled by Arthur Hussey, for the Bureau of Geology. 1974. Hancock and Waldo Counties not compiled.	Mapped at 1:125,000. Mapping units vary; some areas were mapped down to 5 acre units.
5. Marine Environments	Air photo interpretation supported by field checking done by Barry Timson, Maine Bureau of Geology. 1974 and 1975.	Mapped at 1:24,000, minimum mapping unit, 1 acre.
6. Water Classification	"The States Classification of Inland and Tidal Waters" coupled with discussions with the Department of Environmental Protection staff were used as sources by Gary Higginbottom and John Berkey of the State Planning Office staff, 1974.	Mapped at 1:48,000. All streams and ponds on U.S.G.S. Maps were classified.

Data Gathered	Methods, Materials, Personnel, and Sources Used	Level of Detail
7. Watersheds	Basic topography from U.S.G.S. topo sheets and ridge lines coupled with stream drainage patterns used by Gary Higginbottom and John Berkey of the State Planning Office staff in 1974.	Mapped at 1:48,000. Drainage patterns for all streams and ponds on U.S.G.S. maps. Small islands were not mapped.
8. Wildlife and Fish Resources	Alan Hutchinson of the Department of Inland Fisheries and Game consulted with regional biologists, coastal wardens, various published inventories, and other individual researchers, 1974.	Mapped at 1:48,000. 5 acre minimum mapping unit except for point location of nesting habitat.
9. Marine Resources	Data for lobsters, clams, scallops, and commercial worm beds was gathered from coastal wardens and individual fishermen by Gary Higginbottom and Harry Tyler of the State Planning Office staff with assistance from the Department of Marine Resources staff, 1974–1975.	Mapped at 1:48,000. Major commercial beds with minimum mapping units of 10 acres.
	Anadromous Fish data was done by Lew Flagg of the Department of Marine Resources, 1974.	Streams of Commercial value.
10. Cover Typing	Areas 1 & 2 were done by Sewall Company from Soil Conservation Service black and white photos taken in 1966.	Mapped at 1:48,000. 5 acre minimum mapping unit.
	Areas 3, 4–1, 4–2, and Winter Harbor in 4–3 were done by Alda Stich of the State Planning Office staff using U–2 photos (1973) and Soil Conservation Service black and white photos (1966) supported by field checking	5 acre minimum mapping unit.
	The remainder of area 4–3 and the town of Richmond were done from U–2 photos (1973) by Bob Fiske for Sewall Company.	Area 4–3, 20 acre minimum mapping unit. Richmond, 5 acre minimum mapping unit.

Data Gathered	Methods, Materials, Personnel, and Sources Used	Level of Detail
10. Cover Typing (cont'd)	Areas 5 and 6 were done by Sewall Company from black and white photos (1972) flown by them for the State Planning Office.	5 acre minimum mapping unit.
11. Scenic Viewpoints	Photographs of scenic areas were taken by John Berkey of the State Planning Office staff which were refined by survey and analysis by Rob Elder of the State Planning Office staff, 1974–1975.	Only viewpoints from or near state and federal highways.
12. Recreation Facilities	Jim Gaffney, Robin Davidov, and Carol Wilcox of the State Planning Office staff used a Soil and Water Conservation District Study, a Parks and Recreation Department Municipal Study, and contacted municipal officials, used telephone and other surveys and published guides and handbooks to complete the inventory, 1974.	Mapped at 1:48,000. Pinpoint location.
13. Facilities and Activities	This data was gathered by Robin Davidov of the State Planning Office staff from contacts with the Soil Conservation Service, other relevant state and federal agencies and municipal officials, 1974–1975.	Mapped at 1:48,000. Pinpoint location.
14. Historic Areas	Areas that were listed on the National Register of Historic Areas (1974) were plotted by Dick Kelly of the State Planning Office staff from data of the Historic Preservation Commission; The "Maine Historic Resources Inventory" was also used, 1974.	Mapped at 1:48,000. Only those listed on the National Register.
15. Archaeological Sites	Based on "Archaeological Surveys of Hancock (1973), Lincoln, and Sagadahoc Counties (1974)" by David Sanger, U. of M. Orono, and consultation with Dr. Dr. Bruce Bourque of the State Library, Alda Stich and Harry Tyler of the State Planning Office staff mapped this information; Data not complete in some areas; 1973, 1974.	Mapped at 1:48,000. Pinpoint Location.

Data Gathered	Methods, Materials, Personnel, and Sources Used	Level of Detail
16. Natural Areas	The data in the "Natural Areas Inventory" by Reed & D'Andrea (1971, 1972) was refined through field checking by Harry Tyler of the State Planning Office staff, 1974.	Mapped at 1:48,000. Areas of State Significance. Pinpoint location.
17. General Soils	Gary Hedstrom of the Soil Conservation Service put together information from medium intensity soil surveys where they were available, (Areas 1, 3, 4, less than half of the towns, Areas 2, 5, approximately 2/3 completed, Area 6 complete). The gaps were filled by generalized soil surveys from aerial photo interpretation supported by field checking, 1974, 1975.	Mapped at 1:48,000. Minimum mapping unit - 10 acres for medium intensity surveys, 50 acre for general surveys.
18. Lakes Classification	Methodology for this data analysis was developed by the Environmental Studies Center, University of Maine at Orono: "A Quantitative Classification of Maine Lakes." It was followed by a "Project Report" for each county; 1974.	Data not mapped.
19. Slopes	Contour interpretation from U.S.G.S. topographical maps was done by Mark Adelson, a University of Maine at Farmington student, 1974, 1975.	Mapped at 1:48,000. Minimum mapping unit, 5 acres.
20. Flood Prone Areas	The maps produced by Deleuw and Cather of Boston provided the basic information which was refined by Gary Freebody of the State Planning Office staff by contour interpretation and soils interpretation, 1975.	Mapped at 1:48,000. Minimum mapping unit, 2 acres.
21. Climatological Data	Some very general climate data was gathered by Gary Higginbottom of the State Planning Office staff from NOAA Weather Service records from scattered recording stations along the coast.	Generalized

Data Gathered	Methods, Materials, Personnel, and Sources Used	Level of Detail
22. Socioeconomic Data	Rob Elder of the State Planning Office staff gathered information from census data and a wide range of statistical sources in various state and federal agencies, 1960–1973 data.	Town Size
23. Trails and Canoe Routes	Using the Appalachian Mountain Club Trail Guide, the A.M.C. New England Canoeing Guide, contact with municipal officials, and local citizens, Carol Wilcox of the State Planning Office staff inventoried existing trails and routes, 1974.	Mapped at 1:48,000. All available information was mapped.

7. ADMINISTRATION

Summarized in cover letter.